

**A STUDY OF CREATIVITY AS A FUNCTION OF  
ADJUSTMENT, SELF-CONCEPT AND  
NEED-ACHIEVEMENT**

*Thesis Submitted for the Degree of*  
**Doctor of Philosophy in Psychology**

*Bundelkhand University Jhansi*

*By*

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**February, 2002**

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I, Shruti Mishra, a candidate of Ph.D. Degree of Bundelkhand University Jhansi, declare that the Thesis incorporates my own original work. I have spend atleast 200 days with my supervisor for the purpose of guidance. The thesis is also satisfactory from the language point of view of well as the presentation of subject matter.

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(Dr. Satish Chandra Sharma)

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## Preface

Creation is an expression of the inner state of the creator and it is potential, which influences human activity in almost all spheres, Scientific, technical and artistic fields. It is an inspired trait. This potential should be identified, developed and encouraged at an early stage of development since, 1955, a great deal of interest was noted in the field of creativity by different educationist and psychologists. According Taylor, "Creativity at its highest has probably being as important as any human quality in changing history and in reshaping the world". Getzels and Jackson and Torrance (1962) emphasised that creative ability contributes significantly to the acquisition of the educational skills and informations.

A creative person respects that creative spark in other individuals. This is one of the reason why education for creativity is so important. Creativity is energy being put to work in a constructive fashion. Creativity still remains to be a highly significant topic for observation and research. Every child has creative potentials and these potentials are to be expressed and channelised in a healthy direction. To achieve this aim, Thesis assumes the importance of creativity to be studied in highly scientific manner. The basic data around which the major themes in this thesis are discussed were collected on college going adolescents of Jalaun District of Uttar Pradesh.

The first Chapter of the thesis describes three variables i.e. Adjustment, Self-concept and Need-achievement and its importance and effect upon creativity.

The Second chapter of the thesis deals with the related studies done in India and abroad.

In third chapter, general information about district and Methodology. Methodology deals with the selection of the sample, tools, development of the local norms for the process of data collection.

In chapter fourth, analysis and interpretation of the data has been done with the help of various statistical measures.

Conclusion is given in the last chapter, suggestion for further studies have also been added in this chapter.

*Shruti Mishra*  
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# **CHAPTER - Ist**

# INTRODUCTION

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## CREATIVITY :

Creativity weighing the person his cognito, intellectual, temporal and psychosomatic efficiency and effectiveness to perform a stream of specific actions, unique in ways and useful for others. For example- Crutchfield (1967), "Thought of a creative person as an independent functioning unit".

### *Creative Person and Creative Process :*

United States dedicated to creativity as the most important goal of education. This movement, beginning formally in psychological and educational research in 1950 but rooted in massive social forces set in motion with the conclusion of world war II. Such as the creative education foundation in New York.

Guilford (1950), in his parting address as president of American Psychological Association pointed out that upto that time only 186 out of 121000 topics listed in psychological abstract dealt with creative imagination.

A creative person respects that creative spark of other individuals. This is one of the reason, why education for creativity is so important. Creativity is energy being put to work in a constructive fashion.

Each individual perceives the situation in his own manners and reacts to it on the basis of his experiences, imaginations and original thoughts. On account of these qualities, man creates new horizons. Every new invention is the result of man's creative mind. Indian philosophers have given deep and abiding thoughts on creativity. They described this phenomena as Navanavomesha- Shalinia Pragva, man is creative in his ability to create new forms.

Creation has long been thought of as a mystery and has been deemed the province of religion or more broadly, of the supernatural. Supernaturalism includes magic as well as religion and may be described as an attitude of mind in which the occurrence of the unfamiliar is proved to be interpreted as an interruption of the natural course of events.

This sense of the mystery surrounding creation is close to a universal sentiment and certainly it may be found in the breasts of even the most scientific approach of psychologists as they approach the phenomenon of psychic creativity. Creativity may be defined quite simply, as the ability to bring something new into existence.

But in this divine creation act something is made to exist where nothing existed earlier. Human act of creation always involves a reshaping of given materials, whether physical or mental. The "Something new" then is a form made by the reconstitution of, or generation from something old.

Mystery of creation-modern psychology can offer only the most modest of beginning to scientific knowledge in the area of psychic creativity. Psychology can't as yet promise such amazing revelations. Concerning the process of creation in the psychic sphere, and it must still follow the older branches of science at a respectful distance. As this implies, the psychology of creativity is intimately bound up with the psychology of individual difference.

The concept of creativeness is actually based on the needs of man and realities of his nature, creativity actually involves some thing new or atleast rare and useful and his so complex and multidimensional that each thinker considers its different dimensions. Passi (1973) defined creativity as "A multi-dimensional (Verbal and Nonverbal) attribute differentially distributed among people and includes chiefly the factors of solving problems, fluency, flexibility, originality acquisitiveness and persistency."

Creativity is a result of mysterious functioning of the mental process. This process subsist on the experiences right from childhood to adolescence (concept formation, education of relation, concretization images, ideas). In certain studies carried on by Guilford & others, it was established that creativity is a measurable quality. If one goes through Bergon's theory of creative education, Lloyed Morgan's concept of emergence, Withead's philosophy of organism, one can't but come to the conclusion that creativity is certainly a determining capacity of

nature (Formation of and consequential entities and of new and consequential patterns of activity). This leads to the formations of fundamental dispositions in personality. The addition of the formation (creation, construction, reconstruction) process and effect to the inventory of dispositional properties of personalities. It is therefore clear that creativity is a capricious process which rarely shows itself when called upon.

In recent years, creativity has come from the view that creativity is a cognitive variable. Creative process always focus a strange approach from society. A good amount of research work has been done in the western countries as well as in India. Albert has published personality dynamics of creativity in relation to other aspect of creativity. It seems sufficient to say here that the empirical view have indicated that human intellectual cognitive attitudinal, actional infantile, experience, emotional and behavioural factors play main roles in creativity determinations. Among intellectual factors anxiety, aspiration, frustration, imagination, memory, ability, totality with concept, logical thinking and reasoning on the cognitives side perceptual factors play the vital role.

Creation is an expression of the inner state of the creator and it is potential which influence human activity in almost all spheres- scientific technical and artistic fields, it is an inspired trait.

### *Measurement of Creativity :*

Making of thoughts is the most common instance of human participation in the creative act. A man may think a thought which for him is a new thought, yet it may be one of the most common thoughts in the world where all thinkers are taken into account; His act is a creative act, but something" new produces something new in the population of thoughts, he can claim as his own, not something new for mankind as a whole. All of us are both creature and creators, but we vary both in our quality as a creation and in our power to creator.

Indeed, there is a reason to believe that originality is almost habitual with individuals which produces a really singular idea, what this implies is that a highly organized mode of responding to experience is a precondition for constant creativity.

As a measurement area, the psychology of creativity cuts across the domains of perception ideation, temperament and motivation. The kind of behavioural products, we may designate as creative, are of course quite various; a novel solution to a problem in a mathematics, a mechanical invention, the discovery of a new chemical process.

### *Stability and Change in Creative Thinking Abilities :*

Education is the process where by potential skills or potential ways of being are made actual through experience as distinguished from innate development patterns. Change is one of the constant factor in human experience. In a fundamental sense, it is not necessary to ask

whether human nature is open to change as it is always changing. The proper question should ask rather specific aspects of human nature and ask about rate, degree and direction of possible change.

In term of this views of intelligence as fractionally quite complex, psychological science as yet has no answer to give to questions about rate, degree and direction of change. The most possible generation seems to be that stability of intelligence in population. Our time is as great as it is in the individual in our own question.

As the extreme of relatedness, form 5 percent to 10 percent of variation in intelligence is a function of environment, the rest is a function of heredity.

### *Nurturing and Encouraging Creativity :*

While in same respects creativity seems to be hardly plant and even to flourish in the midst of hardship and privation, a developing body of testimony from educators and from psychologists in the school system suggests that much potential creativity is made to wether by an unfavourable climate both in the classroom and in society at large.

DREWS (1960) - Studied three groups who had been equated for intelligence social leader. Studios achievers and creative intellectuals, as revealed by interest and performance patterns in high school. The creative intellectuals received significantly lower teacher grade and



these were especially low in comparison with their actual scholastic achievement as evidence in other accomplishments.

As impressive study in depth of the creative adolescent has been made by Emanuel Hammer- working with students of painting in the highschool workshop at New York University.

Hammer's findings, expressed in term of the qualities of the genuinely creative young painters, are consistent at many points with the result both of the institute's studies of creative adults and the studies of Torrance, Drives and Jackson with creative children and adolescents.

For the creative individuals himself- Torrance also has some wise suggestion. The creative individual needs to recognize and esteem his own creativity.

### **ADJUSTMENT :**

Adjustment consist of the psychological process by means of which the individual manages or copes with various demands or pressures.

Adjustment as a process involves the complex interaction of an intricate set of behavioural and emotional systems with each other.

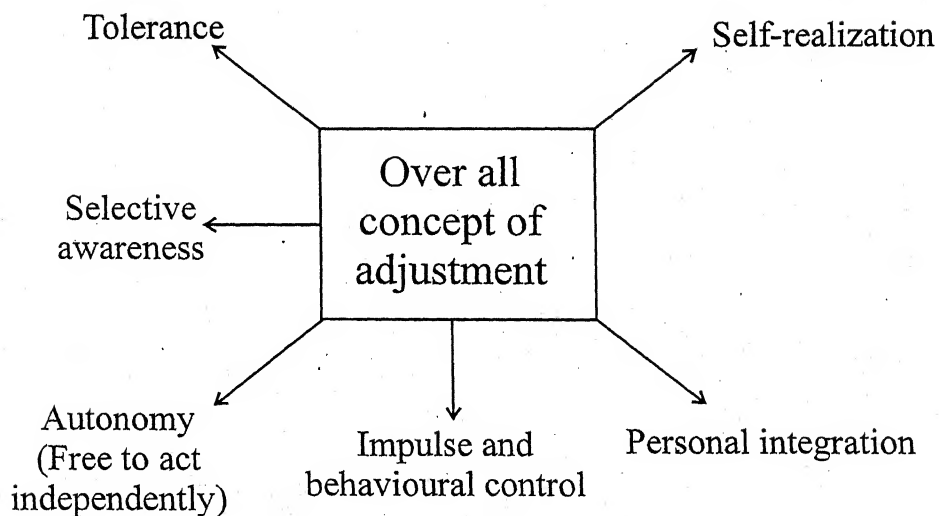
### ***The Adjustive Process :***

Adjustment sometimes refer to a condition of static equilibrium between an organism and its surroundings, it also refers to the process of making changes within oneself and/or one's achievement in order to achieve and maintain the optimum relationship between the two.

## *Dimension of Human Adjustment :*

We shall conceptualize adjustment in terms of six dimensions-

1. Selective awareness
2. Tolerance
3. Autonomy
4. Personal integration
5. Behaviour and impulse control
6. Self- realization.



**Figure - The components of adjustment**

Adjustment, as a broad concept, involves growing accustomed to or clasing to respond to certain aspects of one's environment. This is the process of sensory or negative adaption.

Adjustment involves a cessation of response to certain stimuli and an intensification of response to other stimuli. This is the selective awareness dimension of adjustment. Strauss and Lehtinen 1950 "The brain injured individual is often characterized by a lack of appropriate stimulus selectively. He is said to be distractible.

*Selective Awareness*

Rigid and limited stimulus bound awareness	Reality oriented awareness	Fantasy and emotionally dominated awareness
--	----------------------------	---

*Tolerance :*

The process of human adjustment also depends on a degree of acceptance of things that can neither be ignored (adopted to) nor can be changed.

Life in general, requires the acknowledgement of certain limitations and the renunciation of certain specific goals. This means that an acceptance of the inevitable factor is a part of a satisfactory stage over all adjustment process.

*Tolerance*

Indiscriminate acceptance of self and others	Extreme- rejection and denial
--	-------------------------------

*Autonomy :*

Conformity to the ways of the majority as the goal of adjustment assumes that the majority is always right.

There are limits to which individual autonomy is tolerated in any society.

If a man is permitted freedom in society he must confirm to a certain extent to the written and unwritten laws and expectancies of his culture.

If he is to survive and remain a significant person, either within a given social structure or as a modification of that system, he must confirm to some degree to the demands of that culture.

### *Autonomy*

Rigid social conformity	Compulsive inner direction
-------------------------	----------------------------

### *Personal Integration :*

A "closed system" of highly integrated and rigid personality components	Diffusion or disorganization of unstable personality components.
---	--

### *Behavioural and Impulsive Control (Ego control) :*

Extreme constriction of behaviour and repression of impulse	Uninhibited or compulsive overt expression of impulse
---	---

### *Self Realization :*

Complete realization of one's potential	Minimum achievement in proportion to potential
---	--

### *Adjustment and Personality :*

Personality consist of the stable psychological characteristic of the individual that dispose him to deal with situations in certain distinctive ways.

In search of Conn and Crowne- for example - it was shown that personality traits such as the need for approval influence the adjustment process. Two individuals will adjust differently to the same situation. This difference in adjustment itself constitutes variation in personality.

Personality and adjustment are totally interrelated subjects of study. They are two sides of the same coin, it is really impossible to speak of one without the other.

Eighteen and early Nineteenth centuries by psychiatric reform such as those of philippe Pinel and William Tuke and later by the efforts of American Psychiatric Benjamin, Rush, the crusading Dorothea Dix, and the ex-mental patient Clifford Beers.

Adjustment can be distinguished as a human achievement that can be evaluated as a process.

### *Social Factors in Adjustment and Personality :*

Every psychological event in man is influenced by a social setting. When in the company of others. Our thoughts, feelings and action are to some extent measured and guided by these people. Even when we are not in the company of those people, the social experience of our past, play an important role in determining our action.

(Studies - Solomon E. Asch, 1952)

**SELF CONCEPT :**

The individual's self (जीव) deluded by forgetfulness of his identity within the divine self, bewildered by his ego, grieves and his sad, but when he recognizes his own true self, and beholds his glory, he grieves no more "मुण्डका उपनिषद्".

The self can only be perceived through meticulous refinement of our discriminating capacities, Modern psychology has, with rare exceptions, neither studied the self nor even recognized its existence. Perhaps the subject is not within the realm of psychology. It's true that psychology is the science of mental life and it is also true that the self is beyond sense and mind, so we don't blame them for this ignorance.

The self of the creative individual is highly motivated and it directs him to achieve some thing new. The part played by personality has been recognized by numerous research scholars. The first investigator on the problems of creativity personality relationship is Galton (1869-1874). Taylor and Holland (1964) summarises the personality characteristic of creative persons as autonomous, self sufficient, independent in judgement, more suitable, more resourceful and adventurous, self controlled emotionally, sensitive introverted and bold.

Torrance (1962) emphasised that creative ability contributes significantly to the acquisition of the educational skills and informations. The creative person possesses the specific personality

characteristic such as autonomy, independence, firmness of interest, dominance, self assertion, self acceptance, resourcefulness and complexity of personality. The self of the creative individual is highly motivated and it directs him to achieve something new.

The self concept, like other concepts is a set of rules for processing information : This particular set has a central regulatory function governing all information- processing and of monitoring sensory input.

This set of rules operates as an executive monitor in information processing models similar to one suggested by Bruner (1973) and functions like ego control processes proposed by Freud (1923), Hartzman (1964), states that "The ego organises and controls motility and perception- Perception of the outer world but probably also of the self : The ego's co-ordinating or integrating tendencies" as well as the differentiating factors" comprise an "organising function" representing one level of "mental self regulating in man".

Unlike other clinic based theorists such as Freud, Adler and Erikson, Rogers does't denote much attention to personality development.

Rogers - postulates that when the self is formed, it is governed by the organismic valuing process alone. In the words of Rogers the infant or child evaluates each new experience in term of whether it facilitates or impedes his or her innate actualizing tendency.

For instance hunger, thirst, cold, pain and sudden loud noise are negative valued.

Food, water security and love are positively valued. Roger's view of good life begins with an assessment of what it is not, It is neither a state of virtue, contentment, happiness nor a condition in which the individual is adjusted, fulfilled or actualized. It is a process of movement in a direction which the human organism selects..... the person who is psychologically free moves in the direction of becoming a more fully functioning person.

### *The Development of Self Recognition :*

Self recognition is only one part of the self-knowledge, but it is easy to define and to observe. The kinesthetic feedback- produced by our action is continuous and such action out come contingencies must theoretically from the basis for self- recognition.

However observing self recognition experimentally may be more difficult than defining it theoretically, for example- facial recognition should be universal in our society as a result of repeated exposure to mirrors and picture.'

Self-recognition itself may not be a unitary concept- since recognition may occur in several modalities- visual, audotiry, tactile.

Recognition of the importance of self concept as a dynamic- in human behaviour must certainly be regarded as one of the most fruitful contributions of humanistic psychology.



### *Influences on Self-concept Over Adolescence :*

By late adolescence, the post highschool years, "should" be intergrating their selves, though the studies of identify status (for example Marcia 1966, 1980) suggest that this task doesn't come until later (it at all for many youth).

Many young people struggle with issue of separation from their families of origin (Blos 1962).

Heterosexual relationships (Coleman 1977) and occupational issues (Havinghurst and Gottlieb 1976) become important for many youths.

### *Demographic factors associated with self concept at Adolescence :*

(i) *Sex* : Many studies have found that the girls have poorer self-images than boys at adolescence (Gove and Herb 1975, Offer and Howard 1972, Offer and Howard 1977, Simmons and Rosenberg 1975).

(ii) *Quantitative Changes in Self-concept* : Most of the available evidence suggests that self-concept become less stable and more negative in early adolescence research of Simmons and Rosenberg.

(iii) *Socio-Economic Status and Ethnicity* : The major research on socio-economic status (SES) in relation to self-concept is at least partly dependent upon the adolescent's reference group.

Some studies have found that youth with higher SES have better self- image while others have obtained the reserve result and still.

### **NEED ACHIEVEMENT :**

There are two problems of behaviour which any theory of motivation must come to grip with. The first problem is to account for an individual's selection of one path of action among a set of possible alternatives. The second problem is to account for the amplitude or vigor of the action tendency once it is initiated and for its tendency to persist for a time in a given direction.

Thematic Apperception test was used to assess individual differences in strength of achievement motivation (Atkinson 1954, McClelland 1955, McClelland Atkinson Clark and Lowell 1953).

A motive is conceived as a disposition, a strive for a certain kind of satisfaction as a capacity for satisfaction in the attainment of a certain class of incentives which produce essentially the same kind of experience of satisfaction : provide in accomplishment, or the sense of belonging and being warmly received by others or the feeling of being in control and influential.

*The Achievement Motive is Considered a Disposition to Approach Success :*

*The Principle of Motivation :*

Motivation = F (Motive x expectancy x Incentives)

F = Function

*Particular Motive = N - Achievement :*

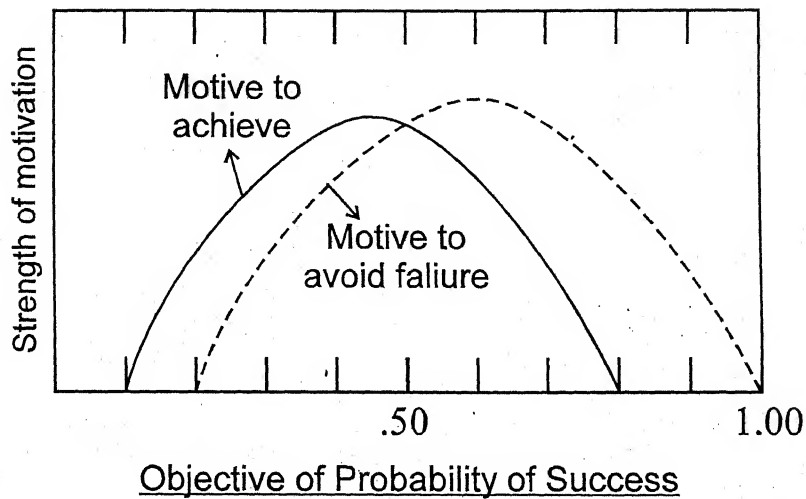
Performance is positively related to the strength of the particular motive only when an expectancy of satisfying that motive through performance has been aroused and when expectancies of satisfying other motive through the same action have not been sufficiently aroused conformed the simple relationship.

The two extreme partners of aspirant behaviour which were designated hope of success and fear of failure by Clark, et.al., are to be considered two phenotypically dissimilar alternatives that are genotypically similar.

Raphelson 1956 has presented evidence that n achievement, as measured in thematic apperception is negatively related to both score on the Mandler Sarason scale of Test Anxiety.

The high n achievement groups showed evidence of maximum motivation when the observed or stated probability of success was approximately .33. At this point, the high need achievement group showed the highest level of constrained performance.

In other words, the stronger the achievement motive relative to the motive to avoid failure, the higher the subjective probability of success, given state odds.



There should be tendency for stronger motivation to be expressed in performance when the objective odds the long, i.e., below .50.

When the motive to avoid failure is stronger than the achievement motive there should be greater motivation expressed when the objective odds are short, i.e. above .50.

**Table - 1**

**Concept in five theoretical statements related to the  
variables, subjective probability, attainment,  
attractiveness and choice potential**

<b>Theorist</b>	<b>Concepts</b>	<b>Resultant</b>
Lewin, etal	Subjective probability x valence	Force (weighted valence)
Tolman	Expectation, need push, valence	Performance Vector
Rotter	Expectancy and reinforcement value	Behavioural Potential
Edwards	Subjective probability x utility	S.E.U.= Subjectively expected utility
Atkinson	Expectancy x (Motive x incentive value)	Resultant Motivation

### **STATEMENT OF PROBLEM :**

Each individual perceives the situation in his own manner and reacts to it on the basis of his experiences, imaginations and original thoughts. On account of these qualities man creates new horizons, every new invention is the result of man's creative mind.

Torrance (1962) emphasised that creative ability contributes significantly to the acquisition of the education, skills and informations. The creative person possess the specific personality characteristic such as autonomy, independence, ferminity of interest, dominance, self assertion, self acceptance, resourcefulness and complexity of

personality. The self of the creative individual is highly motivated and it directs him to achieve something new.

In the light of above description the researcher was motivated to conduct the study on creativity, adjustment, self-concept and need achievement. Thus the topic is as follows :-

**"A study of creativity as a function of adjustment, self-concept and need achievement".**

Creative individuals remain happy in creating something new and original. Anxiety should be controlled so that he becomes more creative and moves higher in the scale of evolution towards self-realization and self actualization. Torrance 1959, Feldhusen 1965, Permesh 1969, Lal 1974 etc. have studied the relationship between creativity and anxiety.

A creative person respects that creative spark of other individuals. This is one of the reasons why education for creativity is so important. Creativity is energy being put to work in a constructive fashion.

### **IMPORTANCE OF STUDY :**

Fostering creativity has been a primary goal of many programs for gifted students. To design appropriate educational programs for developing creative thinking skills, however, requires an understanding of the nature of creative thought. (In this article, Mumford Michael D. 1988) reviews recent studies on the cognitive mechanisms underlying

creative thought and proposes a general model. This model holds that creative thought involves interactions among a number of distinct cognitive components. Some of the implications of this model for the design of effective educational programs are discussed.

Thus the topic is as follows : **"A study of creativity as a function of adjustment, self-concept and need-achievement"**.

The self-concept is one's image of oneself especially includes as awareness of being (what I am) or awareness of functioning (what can I do). We live in a highly competitive society in which we compete for grades, athletic honors, leadership, job, material partners, social status and almost every thing else we value. In these competitive endeavors we are encouraged to surpass others, to excel, to "get to the top". As a consequence, we often drive ourselves mercilessly towards high levels of achievement and in the process subject ourselves to sustain severe pressure. It is small wonder that many people come to view the world as a "forest primeval" subject only to the law of the "survival of the fittest".

Such attitudes, ofcourse, hinder the development of healthy ego structures in winners and loser alike. Therefore we have to use our maximum creative power and mental potential if we want to win the race. The use of creativity and innovation in new product development still remains in its infancy in developing countries. It is a major reason why the rate of economic and technological development is low in these countries.

Akarakiri (1998) explores the role of creativity and innovation in new product planning. It begins with concept of creativity. This is followed by a discussion on human and environmental factors as the key element in creativity. It is found that all new products start by the generation of idea. It concludes that developing countries should therefore master and put the act of developing new products through creativity and innovation into practice. Thus, now a days, there is a great importance for research in the field of creativity.

#### **RATIONAL FOR SELECTING DISTRICT JALAUN :**

Bundelkhand region of Uttar Pradesh is a backward area from the point of view of literacy and means of life. Jalaun being a part of Bundelkhand region deserves a thorough checkup in this regard.

The District Jalaun lies in the north-west of Jhansi Division of U.P. Total area of the District is 45650 Sq. Kms. out of which 4,509.6 Sq. Kms. is rural area and only 55.4 Sq.Kms. is Urban. Numbers of Towns are 4 and villages are 1156. Thus Jalaun is mainly a rural district. Literacy percentage is only 27.36. Caste plays an important role in all the sphere of life. It indicates a reactionary ideology of the people of District Jalaun.

The above description indicates that District is backward as well as a rurally dominated area. It is a well known fact that not a single psychological study regarding the problems of adolescents has been conducted in this district. The present study will be an asset to the people engaged in this area of research.



There has long been general agreement that personality factors are important in creative thinking. Nisha Singh and Gupta 1976 conducted a study to ascertain the relationship between verbal creative thinking abilities as measured by creativity test Chauhan and Tiwari 1974 and creative personality as measured by आप किस प्रकार के व्यक्ति हैं? Parikashan (B. Nisha and K. Gupta 1977). The subjects were 125 Male and 125 female of undergraduates level scores on fluency, original power and ingenious solution of problems are significantly related to creative personality. The relationship between creative abilities and creative personality is not as high for the females as it was for the males.

### **AIM AND OBJECTIVES :**

The following are the aims and objectives of the present study-

1. To analyse the effect of adjustment upon creativity.
2. To ascertain the effect of self-concept upon creativity.
3. To assess the effect of need-achievement upon creativity.

### **HYPOTHESIS :**

In the light of above aims and objectives several hypothesis will be formulated and examined.

#### **Part-A :**

- A<sub>1</sub>. There is a significant effect of adjustment upon creativity.
- A<sub>2</sub>. There is a significant effect of self-concept upon creativity.
- A<sub>3</sub>- There is a significant effect of need-achievement upon creativity.

**Part-B :**

B<sub>1</sub>- There is a significant interaction effect of adjustment and self-concept upon creativity.

B<sub>2</sub>- There is a significant interaction effect of adjustment and need-achievement upon creativity.

B<sub>3</sub>- There is a significant interaction effect of self-concept and need-achievement upon creativity.

**LIMITATIONS :**

The present study is a general study of creativity as a function of adjustment, self-concept and Need-achievement.

1. It does not aim at clinical or diagnostic analysis of behaviour.
2. The study is confined only to a geographical area of District Jalaun of U.P.
3. The present study is limited to investigate the creativity of college going students level. Students are selected from college population of District Jalaun.
4. Students of higher secondary classes such as 10th or 12th grade were not taken in consideration.

# **CHAPTER - II**

## **REVIEW OF LITERATURE**

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Creativity, as such, is a very complex multidiscipline concept. Its proper understanding and study involves applications and implications of many disciplines, namely psychology, education, sociology, Industry, environment, science etc. The trends occurred in the historical development of creativity depend upon psychological need and demand creative thinking and innovation in the advancing world of scientific achievement and technological advancements as a "Value-Added process and products" in the creative persons with enormous human potential work.

Creativity is a multi-discipline psychological concept primarily however, it has its deeper application and implication in widely applied professionalized fields like education and industrial field. Creativity primarily in psychology and education estimated the relationships of creativity with other psycho-educational variables- such as, intelligence achievement, sex, age, culture, adjustment etc. Rich literature is available on creativity not only overseas countries but also India. However, the recent trend in creativity indicated need for more and more research on scientific creativity in psychology and education and applied research on creativity in Industrial disciplines of human factors at work.

Raina (1980) edited a book on creativity Research International Perspective in which many eminent scholars developed trend reports in the context of their countries. Probably, the thematic review could have given a better picture of research in the area of creativity. The substance of the abstracted findings could have been used to develop the theme.

Based on the research abstracts and publications of NCERT, ICSSR, AIC and the first two surveys of research in education, Passi and others (1982) have published a review monograph, creativity in education. They classified the studies into three clusters of correlates, demographic cognitive and affective. The demographic cluster include age, birth-order, sex, locality and socio-economic status variables. The second cluster included variables like: academic subjects, intelligence and scholastic achievement. The third cluster included variables related to values and personality. This review is limited to Indian studies and is yet to be updated. It is heavily dominated by findings of masters degree research dissertations.

Raina (1991) wrote a trend report on research in Creative. Functioning in the fourth survey of research in education. Comprehensively, he brought to light the national and the international perspectives. One hundred and thirty six studies were classified into six major areas, theoretical/ philosophical, identification and measurement of creativity, intelligence, achievement and creativity; personality correlates of creativity; socio-cultural factors and creativity

and nurturing of creativity. Raina made a very appreciable effort of reviewing both the national and the international perspective. Clear-cut suggestions for future research could have been given.

### **CREATIVITY AND ADJUSTMENT :**

Ramalingam Balakrishnan and Vedagiri Ganesan (1980) carried out the creativity of the workers will influence their job satisfaction only when it interest with their job content. The effect of creativity on job satisfaction with regard to five motivators and five hygienes of 110 blue collar workers with non-creative job contents is studied. The subjects aged from 18 to 52 years and had education upto middle level. As measures of creativity and job satisfaction, Wallach and Kogan's two sub test and wernimont's job satisfaction scale are used. The analysis of variance among the mean job-satisfaction scores of the high moderate and low creativity groups was not significant. The implications of the findings for organizational development are discussed.

The results revealed that high moderate and low creatives do not differ significantly in their levels of job-satisfaction with regard to each of the five motivators and five hygiene, as all the F-ratios were not significant. This reveals the fact that creativity of these blue collar workers has no effect on their job satisfaction.

Blissett, Sonia-E.; McGrath, Robert E. (1996) Evaluated whether creativity training and interpersonal problem-solving training reflect equivalent or complementary skills in adults 74 17-55 yr old

undergraduates completed 4 measures of interpersonal problem-solving, creative performance, self-perceived problem-solving and creative style. Tests used included the Means-ends problem solving; the Torrence Test of Creative Thinking, Verbal; the Problem Solving Inventory; and the Kirton Adoption-Innovation Inventory. Ss received interpersonal problem-solving training, creativity training. Results suggest that creativity and interpersonal problem-solving represent complementary skills in that each training program specifically affected performance only on related measures of performance. A combination of programs affected both abilities.

Graziano- William, G.; Jensen-Campbell, - Lauri, A; Finch, - John, F (1997) studied the self can be conceptualized as a mediating agent that translates personality into situated goal-directed activities and adaptation. This research used a level-of analysis approach to link personality dimensions (Level I) to self system (Level II) and to teacher ratings of adjustment in African American Mexican, American and Level European American Students (N = 317). The authors hypothesized that links among aspects of self-esteem and teacher ratings of adjustment would be domain specific, and those links to dimensions of the 5-factor model would reflect the domain specificity. Structural equation modeling corroborated hypotheses about domain specificity in links between adjustment and 5-factor dimensions. Results were discussed in terms of levels of analysis for personality structure, personality development, and age-related adaptations to social contexts.

Milgram, Roberta-M; Hong,-Eunsook (1999) Examined the long-term predictive validity of challenging out-of-school activities in 130 intellectually gifted 11th and 12th grade males as predictors of their life accomplishments as young adults. Results of followup questionnaires indicate a strong relation between the focus of adolescents' out-of-school activities and the field of their adult vocation was found in 45% of the participants. Participants whose adolescent out of-school activities matched their adult occupation had a higher level of work accomplishment than participants for whom such a match was absent. These findings indicate that measures of out-of-school activities may provide an appropriate tool for counsellors to use in career counselling with adolescents.

Onwuegbuzie, Anthony, J.; Daley,- Christine, E (1999) hope has been defined as a multidimensional construct, comprising a cognitive determination to accomplish personal goals (agency) and the propensity to plan methods of achieving goals (pathways). This study investigated whether these dimensions of hope were related to dimensions of self-perception. Participants were 96 graduate students (mean age 31.3 yrs). Correlations indicate that scores on Agency were significantly and positively related to scores on perceived Self-worth, Perceived job Competence, Perceived Scholastic Competence, Perceived social Acceptance, and perceived creativity. In addition, scores on Pathways were significantly related to scores on perceived job competence, perceived Romantic Relationships and perceived



Creativity. A setwise multiple regression indicated that scores on perceived scholastic competence and perceived job competence accounted for 21.5% of the variance in Agency. Also scores on perceived Creativity and perceived Romantic Relationships explained 21.8% of the variance in pathways. It is recommended that researchers explore the causal basis for relations between hope and self-perception.

Change-Edward-C; Rand,-Kevin-L (2000) The relations among perfectionism, stress, subsequent psychological symptoms, and hopelessness were examined among 215 college students. Hierarchical regression analyses were conducted to determine whether dimensions of perfectionism (P. Hewitt & G. Flett. 1991) predicted psychological symptoms and hopelessness (1month later), and the extent to which stress scores added incremental validity to these predictions. Results indicated that socially prescribed perfectionism was a significant predictor of both adjustment measures. In addition, stress accounted for a significant amount of additional variance in predicting adjustment beyond perfectionism. Consistent with a diathesis-stress model, a significant perfectionism\* Stress interaction was found in predicting scores on adjustment measures beyond perfectionism and stress. However, this interaction was only found for socially prescribed perfectionism. Results provide support for a specific diathesis-stress mechanism and important implications for developing specific interventions in working with perfectionistic college students.

Soucy,- Nathalie; Larose,-Simon (2000) This study examined whether adolescents' perceptions of attachment security and behavioural and psychological control as experienced in family and mentoring contexts are predictive of their adjustment to college. One hundred fifty-eight academically at-risk adolescents (63 men and 95 women, 16-20 years old) completed questionnaires twice during their first semester; before and after they participated in a mentoring program. Analyses yielded 4 findings: (a) Paternal control was predictive of adolescent adjustment to college;(b) above and beyond perceptions of parental attachment and control, perception of a secure relationship with a mentor was predictive of adolescent adjustment; (c) this relationship was found to be stronger for adolescents who reported having high levels of security in the relationship with their mother; and (d) psychological control by both parents appeared to be a significant determinant of academic achievement.

Carlsson, Ingegered; Wendt, Peter-E; Risberg, Jarl (2000) Investigated the relationship between creativity and hemispheric asymmetry, as measured by regional cerebral blood flow (rCBF). Two groups, each consisting of 12 healthy male Ss, Who got either very high or low scores on a creativity test, were pre-selected for the rCBF investigation. rCBF was measured during rest and 3 verbal tasks; automatic speech, word fluency (FAS) and uses of objects (Brick). State and trait anxiety inventories were answered after the rCBF measurements. Intelligence tests were also administered. It was

predicted that highly creative Ss would show a bilateral frontal activation on the divergent thinking task (Brick). While low creative Ss were expected to have a unilateral increase. Calculations were made of differences in blood flow levels between the FAS and the Brick measurements in the anterior prefrontal, frontotemporal and superior frontal regions. The highly creative group had higher trait anxiety than the low creative group. On the intelligence tests, the low creative group was superior both on logical-inductive ability and on perceptual speed, while the groups were equal on verbal and spatial test. The results are discussed in terms of complementary functions of the hemispheres.

Pancer-S-Mark; Hunsberger, Bruce; Pratt, Michael-W; Alisat Susan (2000) Examined the expectations about university adjustment in the 1st year in a longitudinal study of the transition to a university. 226 students completed a preuniversity questionnaire in the summer prior to beginning at the university, and another questionnaire in February of their 1st year. The preuniveristy questinnaire contained measures that assessed perceived stress and the amount and sources of information students have about the university. The February questionnaire contained measures of adjustment to the university. Results show that the amount of stress that students feel prior to beginning their university studies was significantly related to their adjustment to a university 6 month later. It is suggested that students with more complex expectations about the university tended to adjust better to stressful circumstances than did students who had simpler

expectations. In addition, students who experienced low levels of stress when they were about to begin their first classes at a university appeared to adjust reasonably well, in general, to university life. The authors discuss stress buffering properties of complex expectations as some of the factors that may contribute to more complex thinking about university life.

### **CREATIVITY AND SELF-CONCEPT :**

Feldhusen, - John-F (1995) examined 3 aspects of creative thinking and production: metacognitive processing, the knowledge base, and personality variables. It was determined that all 3 are essential elements, that they operate interactively, and that the result of creative thinking and problem solving are best assessed through evaluation of the products.

Sheldon,- Kennon-M (1995) Correlated measures for Self-determination (SD) including self-determined reasons for striving, striving towards SD, Autonomy Orientation Scale (AOS), and the Self-Determination Scale (SDS) with measures of creativity within the domains of personal goals, motivational orientation, and self concept: the Creative personality Scale and the Problem-solving/Creativity Scale (PSCS). 245 Psychology students were then asked to rate parental autonomy supportiveness. The results show significant or marginal positive intercorrelations of the SD measures except striving towards SD, which was also unrelated to the 2 creativity measures; nor was the PSCS significantly associated with the SDS. While striving toward SD

was related to none of the parental variables, the other SD measures were marginally or more positively correlated with the exception of the AOS. It was concluded that creative Ss are also self-determined.

Laney,- Mary-D (1995) Presented a self psychological model for conceptualizing multiple personality disorder. According to the model proposed, dissociation is utilized as a creative and resilient defence in the preservation of the self. In the face of repeated and severe trauma that impinge upon and frequently shatter the central organizing fantasies of the self, alter personalities that provide selfobject functions are created. The host personality attains psychic survival via the simultaneous splitting off of painful affects and traumatic memories while preserving real objects and idealized parental images. Relevant research and a hypothesized "window of vulnerability" are examined within a psychoanalytic developmental framework. The dual treatment goals of integration and psychic structuring through the transformation of fantasy are illustrated in a case study.

Aguilar-Alonso, Angel (1996) studied means of factor analysis and multivariate analysis of variance (MANOVA). Different measures of creative behaviour and cognitive abilities are correlated with personal characteristics such as psychoticism, extraversion and other measures of personality. The result are consistent with the idea that different forms of creative behaviour are related to distinct characteristics of personality.

Martindale, Colin, Dailey-Audrey (1996) investigated the relationship between creativity, primary process cognition and psychoticism. 37 undergraduates wrote a fantasy story, which was later rated for creativity, and completed 2 other measures of creativity (the Alternate Uses Test and a word association test). Ss also completed the Eysenck personality Questionnaire (EPQ) and the NEO Personality Inventory. Potential creativity was related to primary process content in written fantasy stories. Neither potential creativity nor primary process content were correlated with either psychoticism or openness to experience. An exploratory factor analysis suggests that creativity, primary process cognition, extraversion, and psychoticism are interrelated, linked by disinhibition.

Furnham, Adrian (1999) Studied students completed the NEO-Five factor Inventory (Form S), the 1975 Barron-Welsh Art Scale, and 3 estimates of their own creativity. Multiple regressions showed openness- to-experience predicted all 3 self-estimates of creativity but not the actual creativity score.

T.C. Gyanani (1999) investigated to study the self-concept of the adolescents in relation to certain demographic e.g. sex, caste and religion. For the purpose a sample of 230 units was selected by using purposive sampling technique from the various intermediate colleges of the Agra city. The "Atambodh Mapni" constructed by Chauhan, S (1982) was used to measure the self-concept of the adolescents.

Results indicate that at the adolescent age boys and girls have similar self-concept. but they differ significantly in different dimensions of the self-concept. Caste difference creates significant difference in the self-concept. The non scheduled caste adolescents were found higher on their self-concept than the scheduled caste adolescents. The religion of the adolescents does play a significant role in determining the self-concept of the individual Hindu and Sikh adolescents were found higher in global self-concept than adolescents of other religion. In different dimensions of self-concept, Hindu adolescents have shown high perception in intellectual, social Moral and ethical and emotional self-concept. Muslims have shown high perception in physical dimension sikh adolescents have shown high perception in activity dimension and christian adolescents have shown their high perception in social aspect of the self-concept.

### **CREATIVITY AND NEED-ACHIEVEMENT :**

The relationship between creativity and academic achievement have always remained a very important point of investigation among the investigators. In all of these given studies the academic achievement of the students was determined from the record of the examination the students have just passed.

Raina (1968) on the Minnesota test of creative thinking observed that academically superior children of VIII, IX and X classes were also superior on creativity, but on the same measures.

Phatak (1961) could not obtain significant relationship between creativity and academic achievement among school children. The same results were reported by Medhi, where Mehdi's battery of creativity tasks was administered to VII and VIII class students.

Passi (1971) reported the significance of influence of creativity as measured by the Passi test of creativity over academic achievement of IX, X and XI class students.

Singh et. al. (1977) observed that the academic achievement of secondary school children was significantly related to their scores on creativity on Chauhan and Tiwari's creativity test.

Bedi (1974) reported the superiority of IX class-science students over arts students on the non-verbal creativity as measured by the Torrance test of creative thinking, with the same instruments.

Dhaliwal and Saini (1976) could not observe the significant relationship between creativity and academic achievement in Maths among high school students while flexibility and fluency components of creativity were significantly related to the academic achievement in English, Geography and History and Originality was significantly related to the academic achievement in Hindi.

Paramesh (1973) concluded that on the Wallach and Kogan's test of creative thinking, the high school student's academic achievement in English, Science and elective subjects was positively related but



interaction effects were not significant in all instances, although there was a tendency in favour of a positive effect of interaction for English.

Shrivastava and Jha (1977) reported that on Mehdi's test of creativity X class science students scored significantly higher than arts and commerce students. No difference with regards to creativity was obtained between arts and commerce students.

The superiority of IX class science students was also reported by Pandit (1976) with the same instrument, who also observed a directly proportional relationship between creativity and student's grades in academic achievement. Using the same instrument Singh (1977) also reported that the students who were academically superior were also superior on creativity, but on the same instruments, Thorat (1977) could observe the superiority of academically superior college students on the fluency component of creativity only. Sansanwal and Jarial (1979) could observe no significant differences among the IX class science and commerce students on the different components of creativity as measured by Passi test of creativity.

Saraswati Singh and Mrs. Gur Pyari Mehra (1981) found out relationship and differences between high verbal creatives ( $N = 22$ ) and low verbal creatives ( $N = 19$ ) with respect to educational and career aspiration. Baqer Mehdi's Battery of verbal creativity test (1973) and inventory of Educational and Career Aspirations (Singh and Mehra 1978) were used.

The results were in line with Torrance (1973) and Gatzels (1962). High verbal creatives show unconventional desire for their career and educational aspirations, where as low verbal cretives tend to be more conventional in their professional choice aspire to achieve higher academic degrees and set their goals unrealistically.

S.K. Bawa and Parvinder Kaur's (1995) research paper aimed at (i) finding out the relationship of the dimensions of creativity with the subject wise academic achievement of male and female subjects (ii) studying the relationship of composite creativity with the subject-wise. academic achievement of male and female subjects and (iii) studying the effect of creativity towards the prediction of subject-wise academic achievement of male and female subjects and the total sample it had been found that there is strong association between the scores on the measurements of creativity and academic achievement and is true for both male and female subjects. Creativity and achievement in languages tend to be better correlated than creativity and achievement in social studies and general science. Originality and academic achievement tend to be more strongly associated than academic achievement and fluency and flexibility. Creativity is better predictor of academic achievement in languages than in social studies.

Strzalecki,- Andrzej (1998) studied personality and motivational aspects of scientific choice among 1,390 students in their final year at major Warsaw universities. A specially constructed Creativity Behaviour Questionnaire (A Strzalecki, 1989) was

administered to the students, and the factor structure of their scores analyzed. Results from the criterion group of 391 students who declared their willingness to follow a scientific career were compared with the control group (remaining 999 students). Contrary to expectations, students who planned scientific careers were, in comparison to others: 1) to a lesser extent driven by internal values and less able to make independent decisions that would bring satisfaction (appreciation of life); 2) less able to set long-distance and ambitious goals over partial and more immediate ones (self-realization); and 3) less flexible in problem solving, less appreciative of novel solutions, and less satisfied in overcoming conceptual difficulties (flexibility of cognitive processes). Psychological mechanisms underlying the students decisions, and state policy towards science and educational in Poland are discussed.

Collins-Mary-Ann; Amabile, Teresa-M (1999) studied on the motivation for creativity revealing that, although creativity can arise from a complex interplay of motivational forces, motivation that stems from the individual's personal involvement in the work-love, if you will-is crucial for high levels of creativity in any domain.

Mohan- Noreen-E; Yarcheski, Adela; Yarcheski- Thomas-J (1999) examined relationships among loneliness perceived social support and lack of social confidence in creativity. 35 male and 33 female 22-35 yr. olds responded to the Creativity Scale of the Adjective Checklist, the Revised UCLA Loneliness Scale, the personal Resource

Questionnaire Part II and the Lack of Social Self-confidence subscale of the Interpersonal Dependency Inventory. Significant inverse correlations were found between scores on measures of loneliness and creativity and between scores on measures of lack of social self-confidence and creativity. A significant positive correlation was found between scores on measures of perceived social support and creativity.

Hargadon,- Andrew-B (1999) Studied research on creativity and innovation in organizations has traditionally focused on the role of groups as context for individual cognition and action. This paper draws from recent research on highly innovative organizations to suggest that groups act as agents and not simply arenas of creative action in those organizational contexts where social interactions can trigger the recognition and recombination of diverse individual knowledge. Field data and relevant theories from social and cognitive psychology are used to explicate how group interactions elicit relevant though often nonobvious knowledge from individuals regarding the current situation or past experiences and groggier creative ways of combining those ideas to solve new problems.

Although many psychologists have expressed an interest in the phenomenon of creativity, psychological research on this topic "Creativity-cognitive, personal, developmental and social aspects" did not rapidly expand until after J.P. Guilford claimed in his 1950 APA presidential address, that this topic deserved for more attention than it was then receiving . This article reviews the progress psychologist have made in understanding creativity since Guilford's call to arms.

# **CHAPTER - IIIrd**

## **RESEARCH METHODOLOGY**

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The research problem has already been stated in chapter-1. The methodological design of the study have now been set out in this chapter under the following sections.

1. Population.
2. Sample
3. Research Design
4. Variables
5. Tools of the study
6. The collection of data
7. The Statistical Analysis

### **POPULATION:**

There are seven degree colleges in Distt.Jalaun. All are situated in urban areas and all colleges are co-educational institutions. Only D.V. Degree College, Orai has the faculty of science teaching upto post graduate level. Rest of the six colleges have art faculty. Therefore in this study students of art faculty have been selected. The population of present study constituted of college going students of District Jalaun U.P. Sample were selected from the college going students of the age group of 18 to 21 years.

Some of these colleges are located in urban place like of Orai city and also those which were located in rural areas and are away from roads.

Following is the list of the colleges from which the data have been collected.

**Table No.2 : List of colleges selected for data collection**

S. N.	Name of colleges	Place	Units		
			Male	Female	Total
1.	Gandhi Mahavidhyalaya	Orai	50	25	75
2.	D.V.C. College	Orai	75	50	125
3.	Sanatan Dharam Degree College	Orai	-	25	25
4.	Jaffar Abdi Girls Degree College	Orai	-	25	25
5.	Fundi Singh Launa Rajkiya Mahavidhyalaya	Jalaun	25	25	50
6.	Mathura Prasad Patel Mahavidhyalaya	Konch	25	25	50
7.	Kalpi College	Kalpi	25	25	50
	Total Units		200	200	400

**SAMPLE :**

Sample of the present study was selected by combination of non-probability and probability techniques both first through quota sampling (stratified cluster sampling) and secondly through systematic random techniques.

The dependability of Mean or S.D. is contingent upon the size of the sample upon which the standard error is based. SE's, vary inversely as the square root of sample size so that the larger N in general the smaller the standard error. The larger the N the larger the S.D. of the sample and the more inclusive (and presumably representative) our sample becomes the representative of the general population. The range covered by samples of different sizes, when all are drawn from a normal population will be approximately as follows:-

N - 10    Range = 2.06

N - 50    Range = 2.56

N - 200   Range = 3.06

N - 1000 Range = 3.56

Large samples are not advocated because large number are good in themselves. They are advocated in order to work to speak somewhat anthropomorphically. But samples which are too large can be dangerous (Kerlinger 1978).

Thus total 400 units of students were selected in which 200 were male and 200 were female students between the age group of 18 to 21 years.

The sample will be selected through quota sampling technique followed by systematic random technique. The size of the sample so selected to save time energy and expenses but alongwith it is the representative of the population. Kerlinger justified the size of



the sample as 384 units at 5% level of confidence and 668 at 1% level of confidence. In view of the above facts, the sample size of the present study was justified to be 400.

### RESEARCH DESIGN :

The present study is concerned with the study of impact of adjustment, self-concept and need achievement on creativity an ex-post-facto design was considered suitable for study. Actually the present study is of exploratory nature in which the independent variables have already occurred and the research starts with the observation of dependent variables. Then independent variables are studied in respect of their possible relations and effect on dependent variables.

### VARIABLES :

*Independent Variables* - A. Adjustment

B. Self-concept

C. Need-Achievement

*Dependent Variables* - - Creativity

### TOOLS OF THE STUDY :

After the formulation of hypothesis and selection of the sample the next important step was to select suitable tools for the collection of data. The selection of the tools for any study depends upon various factors particularly depending on the objectives of the

study. The present study is consisted of college going students between the age group of 18 to 21 years old. Many standardized tests were available for the measurement of adjustment, self-concept, need achievement and creativity.

The following tools are used for the data collection in the present study.

*Creativity test by Dr. N.S. Chauhan and Dr. Govind Tiwari :*

The creativity test has been used for measuring different types of creativity. The present test measures five important areas of creativity. These are -

1. Creative production
2. Fluency
3. Original Power
4. Flexibility
5. Ingenious solution of problems.

A detailed description has been shown in the table No.1.

**Table No.3 : Area, subarea, units of the Creativity Test.**

S. No.	Area	Sub-area	Unit	Sub unit	Total (Unit)	Unit time	Total (Time)
1.	Creative Production	-	5	7	10	-----	-----
2.	Fluency	4			(33)		(85)
		A. Associative Fluency	7	4	10	3M.	30M.
		B. Expressive Fluency	1	10	10	2M.	20M.
		C. Word Fluency	3	-	03	5M.	15M.
		D. Idea Fluency	1	10	10	2M.	20M.
3.	Original Power	-	5	-	05	5M.	25M.
4.	Flexibility	2			(09)		
		A. Adjustive Flexibility	4	-	04	5M.	20M.
		B. Spontaneous Flexibility	5	-	05	2M.	10M.
5.	Ingenious solution of problem	-	3	-	03	-	-
	5	6	34	31	60	-	140M.

In this way there are 60 units in the test. For 13 units, there is no time limit while for remaining 47 units a time limit of two hours and 20 minutes. The whole test can be administered in three hours.

### *Reliability :*

Reliability of the test was determined by split half method. Norms and Realibility of the test in shown in table no.

**Table No. 4 : Norms and Realibility.**

Sample - 100      Class - 9 upto 10    (Approximate 41 to 49 students)

Sex - Male      Urban & Rural      Socio-economic status-average

S.No.	Factors	Correlation
1.	Creative Production	.762
2.	Fluency	.831
	A. Associative fluency	.903
	B. Expressive fluency	.483
	C. Word fluency	.689
	D. Idea fluency	.731
3.	Original power	.597
4.	Flexibility	.673
	A. Adjustive Flexibility	
	B. Spontaneous Flexibility	.438
5.	Ingenious solution of problems	.640

*Validity :*

Production movement method    N = 100

S.No.	Factors	Correlation
1.	Fluency	.481
2.	Flexibility	.393
3.	Originality	.403
4.	Total creativity score	.364

For determining the validity of the test the verbal test of creativity by Baker Mendhi was used as criteriya shown in table No.3.

*Deo-Mohan Projective Test or Achievement Motivation :*

The test can be administered individually as well as in a group of 25-30 subjects. It can also be given to a larger group with the use of microphone and a few assistants to help. The subjects should be seated comfortably at some distance from each other and all within such distance that every subject can clearly hear the tester's voice. The tester should make sure that every subject has a pen or a good pencil for writing the responses. Pens should be preferred to pencils as the responses would be clearer and long-lasting.

First the response Booklet which also contains the instructions should be distributed, one to each subject and the subjects should be asked to write down the particulars of name, age, sex and other informations given on the Booklet. The tester should ensure that this is all properly and completely done by all the subjects.

The tester then should give the envelop of pictures emphasizing that there are separate picture series, B series for Boys and G series for Girls and telling the subjects that they should choose the appropriate series for writing the responses. The instructions printed itself on the Response Booklet should be read loudly and properly explained verbally, taking care to see that instructions as these are being loudly read by the tester. The tester should make sure that the instructions are followed and understood by all the subjects. If there are more questions or doubts, these should be properly explained and clarified to all the subjects.

The tester should use a time-keeper for noting the time-intervals and for giving signals, verbally or by ringing a bell. There are five pictures to be shown and each picture is to be shown for 30 seconds. For writing the response stories, 4 minutes are to be given for each picture giving one minute to each of the four questions. The time-keeper should have an orientation for the time-signals.

The tester should ask the subjects to see the first picture with the signal "START. GO TO THE FIRST PICTURE". After 30 seconds, they should be asked to write the answer to the first question. After one minute, instructions should be given to the second question, after one minute again to the third question and after one minute again to the fourth question. When they finish the story for the first picture, give an interval of 15 seconds and go to the second picture and follow the same procedure for the second picture as was detailed for the first

picture. With the completion of the story for the second question, give an interval of 15 seconds and go to the third picture. In this fashion, complete the testing work by going to fourth and fifth pictures. When the stories are completed for the fifth picture, collect the response booklets and also the pictures envelopes from all the subjects. It complete the procedure of administering the test.

### *Scoring :*

The traditional T.A.T. type content analysis system of scoring is adopted for this test. Scoring is to be written on the Response Booklet only. The categories for scoring are given at the bottom of the page R-5 for picture 5 of the Response Booklet. The numerical score to be given for each category is indicated just below the name of each category. This scoring key is visible on all the picture pages, that is on pages R-1, R-2, R-3 and R-4 for pictures 1,2,3 and 4 of the Response Booklet. Each response page R-1 to R-5 has corresponding columns for writing the scores of each category just at the end of the space for the response of all the four questions. The score for each category for a picture should be entered in the corresponding column. These should be summed upto obtain the total score for that picture. The cover of the Response Booklet carries the columns for the total scores of all the five pictures for that subject. The sum of the total scores of the five pictures should be entered under the column "Grand Total" on the Response Booklet's cover page. This is the final score for Achievement Motivation for that subject.

### *Norms & Interpretation of the obtained scores :*

The scores can theoretically range from -5 to +55. Ordinarily, an obtained score will have an inbetween values. For the interpretation of the scores. Frequency distributions with Means and Standard Deviations, percentile norms and T-scores are given in the following Table. The age range for the subjects included in the below distribution is from 13 to 20 years.

**Table No. 5 : Frequency Distribution For Males and Females**

Male		Female	
Scores	F	Scores	F
41 - 45	1	28 - 31	1
36 - 40	1	24 - 27	2
31 - 35	0	20 - 23	9
26 - 30	1	16 - 19	8
21 - 25	7	12 - 15	27
16 - 20	18	08 - 11	64
11 - 15	47	04 - 07	75
06 - 10	106	00 - 03	55
01 - 05	141	-4 - 01	23
-3 - 00	49		
N = 371		N = 264	
M = 6.41		M = 6.91	
S.D. = 6.27		S.D. = 5.96	



**Table No. 6 : The percentile Norms for the total group.**

Percentile	Score
98	22
95	18
90	15
80	11
70	09
60	07
50	06
40	04
30	03
20	02
10	-1
05	-3
02	-4

**Table No. 7 : T-score for the total group.**

Score	T-score
43	82
38	78
33	77
28	75
23	71
18	66
13	61
08	53
03	45
-2	35

*Reliability of the test :*

The Reliability of the test was worked out for the test-retest correlation, scorer's agreement and for the re-scoring consistency.

The test-retest reliability was calculated by obtained scores on the same sample on two administrations of the test with an interval of 5 weeks. The coefficient of correlation for the mixed sample was .41 which falls within the already obtained reliability coefficients of .22 (N= 40) by Mc Clelland and .64 by Atkinson. Later on taking seperate samples of boys and girls, the reliability of coefficients were again calculated; they were .57 for boys with N= 33, .68 for girls with N= 50 and 0.69 with N= 51 consisting of the mixed group of both boys and girls. All the 'r's were significant at .01 level.

*Validity of the test :*

The achievement motivation test, being a measure of complex human behaviour was validated against an external criterion, viz., a locally authors constructed verbal scale of achievement motivation of which information is available in the manual for the same scale. The validity of coefficient was obtained first at the time of item analysis and later for the final form on a mixed sample of boys and girls. Again validity coefficients were obtained seperately for males and females under normal testing conditions. The results are given below.

**Table No. 8 : Validity of Achievement Motivation Test**

	N			No.of stories	r	Lev.of sig.
	Boys	Girls				
1.A. At the time of item analysis	9	+	14	115	.54	.01
B. After finalizing the items	34	+	32	330	.15	N.S.
2. Later attempt	27	+	55	Boys 135	.61	.01
				Girls 275	.69	.01

The Validity coefficients were observed to be quite encouraging at the later attempt and therefore no further attempt was made to test it under different conditions.

### *Mukta Rani Rastogi's Self-concept Scale :*

There are numerous self-concept inventories available in English and Hindi. But due to following factors researcher have selected Mukta Rani Rastogi self-concept scale because.

1. It contains very brief and clear instructions.
2. In items of multiple choice the respondents have simply to mark their choice.
3. It gives the maximum information in shortest possible time.
4. It is convenient in administration and scoring.

The self-concept scale consists of 51 items. It can be administered individually as well as to a group. There is no time limit but all the items can be responded within the time limit of 30 minutes. The respondent is given following instruction to give the responses.

"Here are given fifty one statements. Below each statement are given five responses (strongly agree, agree, undecided, disagree and strongly disagree). Please read each statement carefully and respond to it by marking a tick on any of the five responses given. If you really strongly agree with the statement mark [✓] on 'Strongly agree' if you only agree with the statement mark [✓] on 'Agree' and so on."

Example - I feel shy before others.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree
----------------	-------	-----------	----------	-------------------

Here the individual 'x' agrees with the statement and therefore has marked [✓] response 'Agree'. There is no right or wrong response. Try to give your response according to what you feel about yourself in reference to that statement. Your answers will be kept confidential.

### *Scoring Method :*

The respondent is provided with five response alternatives to give his response and therefore a score from one to five may be obtained for each item, positive items are scored five to one for responses (strongly agree, agree, undecided, disagree and strongly disagree) and negative items are scored one to five for the same response alternatives. In table no. I letter P or N below item number indicates whether the item is positive or negative.

**Table No.9 : Constructs of self-concept alongwith their item numbers.**

S.No.	Constructs	Item numbers
1.	Health and Sex appropriateness	6 20 29 22 34 and 46 P P N N P P
2.	Abilities	4 8 12 23 36 38 39 and 42 P P N N P N N P
3.	Self-confidence	7 9 14 16 and 44 P P N N P
4.	Self-acceptance	2 10 17 and 35 P N N N
5.	Worthiness	1 3 19 25 27 41 and 48 P N N P P N P
6.	Present,Past and Future	18 22 26 31 and 40 P P N N P
7.	Beliefs & conviction	24 47 and 49 N P P
8.	Feeling of shame or guilt	5 13 28 30 and 50 N N N N N
9.	Sociability	33 37 43 and 45 N P P N
10.	Emotional	11 15 21 and 51 N N N N

*Norms :*

Mean scores of the ten constructs and total test were computed separately which are given in table No.10.

**Table No. 10 : Mean scores for the construct and the whole scale**

S.N.	Constant	Male	Female	General
1.	Health and sex appropriateness	21	19	20
2.	Abilities	29	27	28
3.	Self-confidence	18	16	17
4.	Self-acceptance	15	15	15
5.	Worthiness	28	22	25
6.	Present,Past & Future	17	19	18
7.	Beliefs and convictions	11	11	11
8.	Feeling of shame & guilt	13	19	16
9.	Sociability	14	14	14
10.	Emotional maturity	13	11	12
	TOTAL :	176	173	176

*Reliability :*

Reliability of the scale by split-half-method. Following Spearman-Brown Prophecy formula was found to be .87.

### *Taresh Bhati's Adjustment Inventory :*

The adjustment Inventory has been used for measuring different types of adjustment. The present inventory measures five important areas of Adjustment. These areas are -

- a. Home
- b. Educational
- c. Social
- d. Emotional
- e. Health

### *Administration :*

It is a self administrating inventory. There is no time limit for answering it. However most of groups should finish it in about 15 minutes. It should be emphasized that there is no right or wrong answer to the statement. They are constructed to have differences in individual's reaction to various situations.

### *Scoring :*

Inventory can be scored by hand. For any answer indicative of well adjustment one score is given. Otherwise zero is awarded. High score on the inventory indicates good adjustment while low score is the indicator of poor adjustment.



### *Reliability :*

The coefficient of reliability was determined by the following two methods -

1. The test-retest reliability was determined by administering the test after four weeks.
2. The split-half reliability was ascertained by adopting odd-even procedure.

Table-1 shows the coefficient reliability determined by the two methods.

**Table-11 : Co-efficient reliability of adjustment inventory.**

Method	Area					
	Home	Educa- tional	Social	Emot- ional	Health	Total
1. Test-Retest Method	.83	.87	.92	.88	.82	.91
2. Split-half Method	.88	.85	.39	.87	.90	.89

### *Validity :*

Validity of the inventory was found out by correlating the scores of the present inventory with the external criterion as the scores of other valid and standardized adjustment inventory. The following two valid were used-



- (1) The Adjustment inventory constructed and standardized by Dr.D.N.Srivastava and Dr.G.Tiwari on 150 subjects.
- (2) The Adjustment Inventory constructed and standardized by Dr.Har Mohan Singh on 150 subjects. Correlation was found .79.

#### **THE COLLECTION OF DATA :**

The sample for the study was selected from the student of College going 18 upto 21 years old. The names of the Colleges from which the samples were drawn have already been mentioned. The principals and teachers of those colleges were contacted personally. The importance of study and utility of the study was explained to them. All of the principals as well as teachers took a keen interest in the research work and they provided necessary facilities in the school.

The following procedure was followed for data collection purpose. In the beginning, the investigator gave an orientation lecture to the students in the group. They were made acquainted with the purpose of the study through lecture.

The students were assured that their responses would be kept strictly confidential. They were requested to answer frankly and give correct information.

The answer sheets for the creativity test. Test were distributed together with the test booklet. The respondents were asked to go through the instructions. After this the instructions were again repeated by the investigator to clear doubts, if any.

There were 60 items and the respondents were required to select only those statements that they did or liked to do. Check the serial number of selected item with that of the answer sheet and tick that serial number. In this way, the answer has to be given on a separate sheet and thus the test booklet could be used again. The creativity of this test required on an 3 hours.

Need Achievement test can be administered individually as well as in a group of 25-30 subjects, therefore researcher used this test in a group. The answer sheets for the Need-achievement test were distributed together with the test booklet. The respondents were asked to go through the instructions. After this the instructions were again repeated by the investigator to clear doubts, if any.

After 30 seconds, researcher asked to write the answer to the first question. After one minute. Instructions had being given to the second question, after one minute, again to the third question and after one minute again to the fourth question. When they finished of the story for the first picture, an interval of 15 seconds have been given and went to the second picture and follow the same procedure for the second picture as was detailed for the first picture.

In this fashion, completed the testing work by going to fourth and fifth pictures. When the stories were completed for the fifth picture researcher, collected the response booklets alongwith the picture envelops from all the subjects.

After the administration of test an interval of about 10 minutes was given and then the third test the self-concept scale was administered. After distributing this test to all the subjects the researcher told them "Here are given fifty one statements. Below each statements are given five responses (Strongly agree, Agree, undecided, Disagree and strongly disagree). Please read each statement carefully and respond to it by marking a (tick mark) on any of the five responses given.

After 30 minutes, when subjects completed this test. Adjustment Inventory was distributed to the subjects.

Thus testing time average was about 4 hours. Testing and scoring were done by the investigator personally for the purpose of maintaining uniformity. The protocols of all the subjects were scored according to the instruction given in the manual. Collecting all the data the investigator was ready for analysis to draw conclusion have been which are discussed in the next chapter.

## **THE STATISTICAL ANALYSIS :**

The statistical operation followed for the present investigation involved descriptive and inferential technique both. Computation of Mean, S.D. and 't' test and Anova (2x2 factorial design). Mean, S.D. and 't' test were used mainly for finding out significant mean difference between the sub-groups under study. Quartiles were computed for giving

highest and lowest 25% cases on adjustment test, Need-Achievement test and self-concept scale. for the purpose of interpretation factorial technique 2x2 was adopted to findout interaction between two variables i.e. Adjustment and self-concept upon creativity, Adjustment and Need-achievement upon creativity, self-concept and need-achievement upon creativity.

# **CHAPTER - IVth**

## ANALYSIS AND INTERPRETATION OF DATA

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This chapter presents the data, its analysis, interpretation and results. The results have been presented according to the following scheme. A mention of this may facilitate to understand the whole of the work-done.

### Part-A :

- $A_1$  = The effect of adjustment upon creativity.
- $A_2$  = The effect of self-concept upon creativity.
- $A_3$  = The effect of need-achievement upon creativity.

### Part-B :

In this section the interaction effect of all the three variables i.e. self-concept, adjustment and need-achievement upon creativity have been studied. Thus this action consist of three sub-parts as follows:

- $B_1$  = Interaction effect of adjustment and self-concept upon creativity.
- $B_2$  = Interaction effect of adjustment and need-achievement upon creativity.
- $B_3$  = Interaction effect of self-concept and need-achievement upon creativity.

**PART-A :**

In part A, the significant effect of all the three variables i.e. adjustment, self-concept and need-achievement upon creativity was studied. Thus this section has three sub parts-

- $A_1$  = The effect of adjustment upon creativity.
- $A_2$  = The effect of self-concept upon creativity.
- $A_3$  = The effect of need-achievement upon creativity.

 **$A_1$  - THE EFFECT OF ADJUSTMENT UPON CREATIVITY :**

In this section an attempt has been made to study the effect of adjustment upon creativity. The creativity is measured by the inventory of Dr. N.S. Chauhan and Dr. Govind Tiwari. This scale measures creativity in five areas namely (1) creative production (2) creative fluency (3) original power (4) flexibility (5) ingenious solution of problems. For measuring adjustment, the inventory of Sharma and Bhatia was administered on the basis of the quartile deviation that is  $Q_1$  and  $Q_3$ . The adjustment scores were classified in three groups that is-

- (1) Creativity scores on low adjustment ( $N_1 = 144$ )
- (2) Creativity scores on average adjustment ( $N_2 = 167$ )
- (3) Creativity scores on high adjustment ( $N_3 = 89$ )

In order to know whether the adjustment affects the creativity the 'F' ratio and 't' test have been used among the three levels of adjustment of creativity scores. The purpose of calculating 'F' ratio is obvious since comparison of three groups is possible by 'F' value. but 't' test which is a powerful test, is applied to observe intergroup differences.



Table No.12. : Mean, S.D., 'F' ratio, 't' values on creative production belonging three adjustment levels.  
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ )

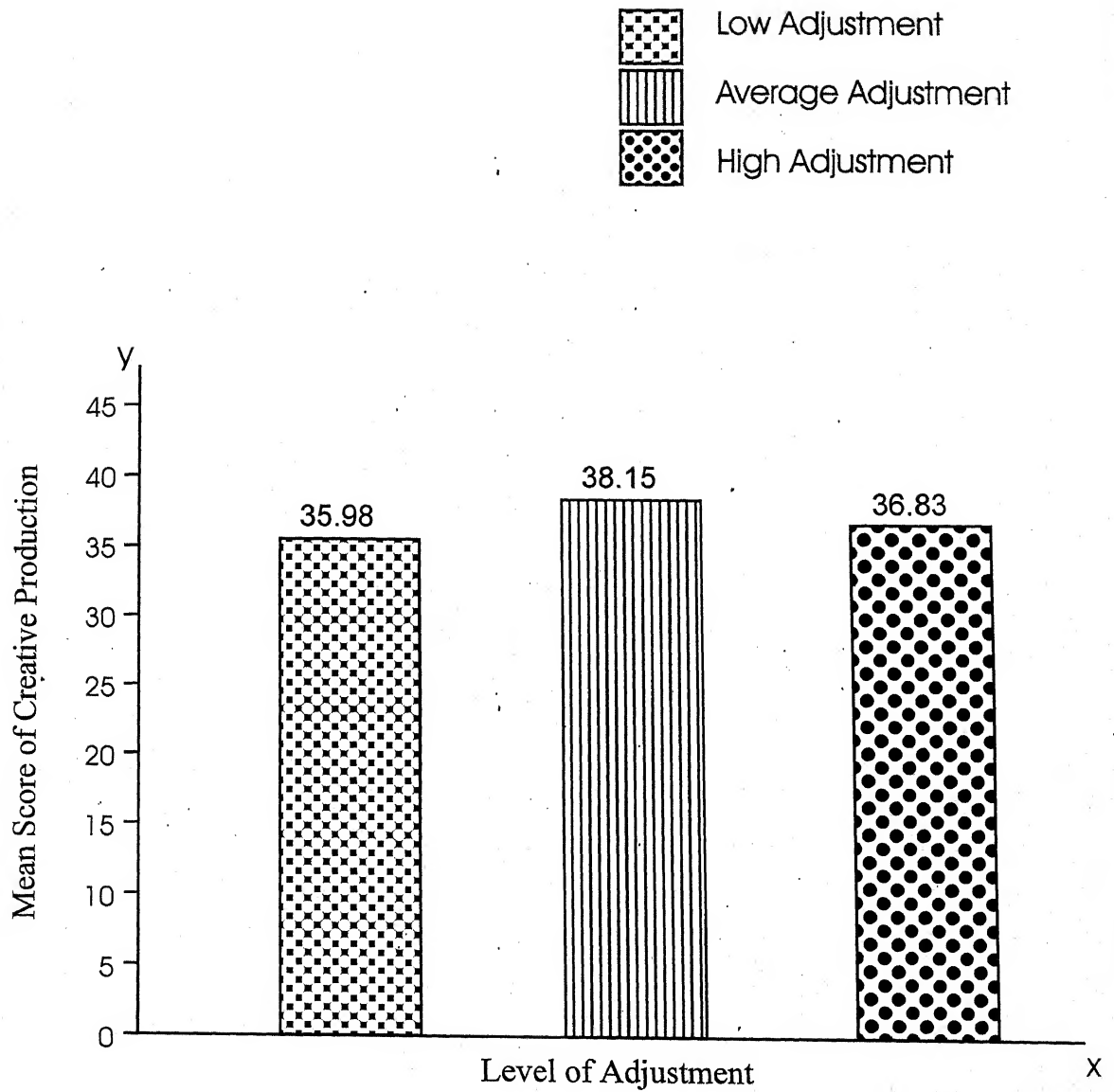
S.N.	Adjustment Level	Creative Production				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	35.98	10.23	*2.40	$t_{1-2} = 2.03$
2.	Average Adj.	167	38.15	8.36		$t_{2-3} = 1.36$
3.	High Adj.	89	36.83	6.80		$t_{1-3} = .76$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.12 reveals that mean score of creative production on low adjustment level is 35.98 and S.D. is 10.23, on average adjustment level is 38.15 and S.D. is 8.36 and on high adjustment level is 36.83 and S.D. is 6.80. The 'F' ratio for the three levels was obtained 2.40 not significant at .05 level. It means that adjustment has no effect on creative production. Verification of these results was also done by 't' test computed among all the three level of adjustment 'f' value on creative production between low- average adjustment level was obtained  $t_{1-2} = 2.03$  significant at .05 level. While there is no significant difference between average-high and low-high adjustment level of creative production score.





Bar-diagram No.1 - Showing mean value of creative production belonging to three levels of adjustment

Table No.13. : Mean, S.D., 'F' ratio, 't' values on creative fluency belonging three level of adjustment.

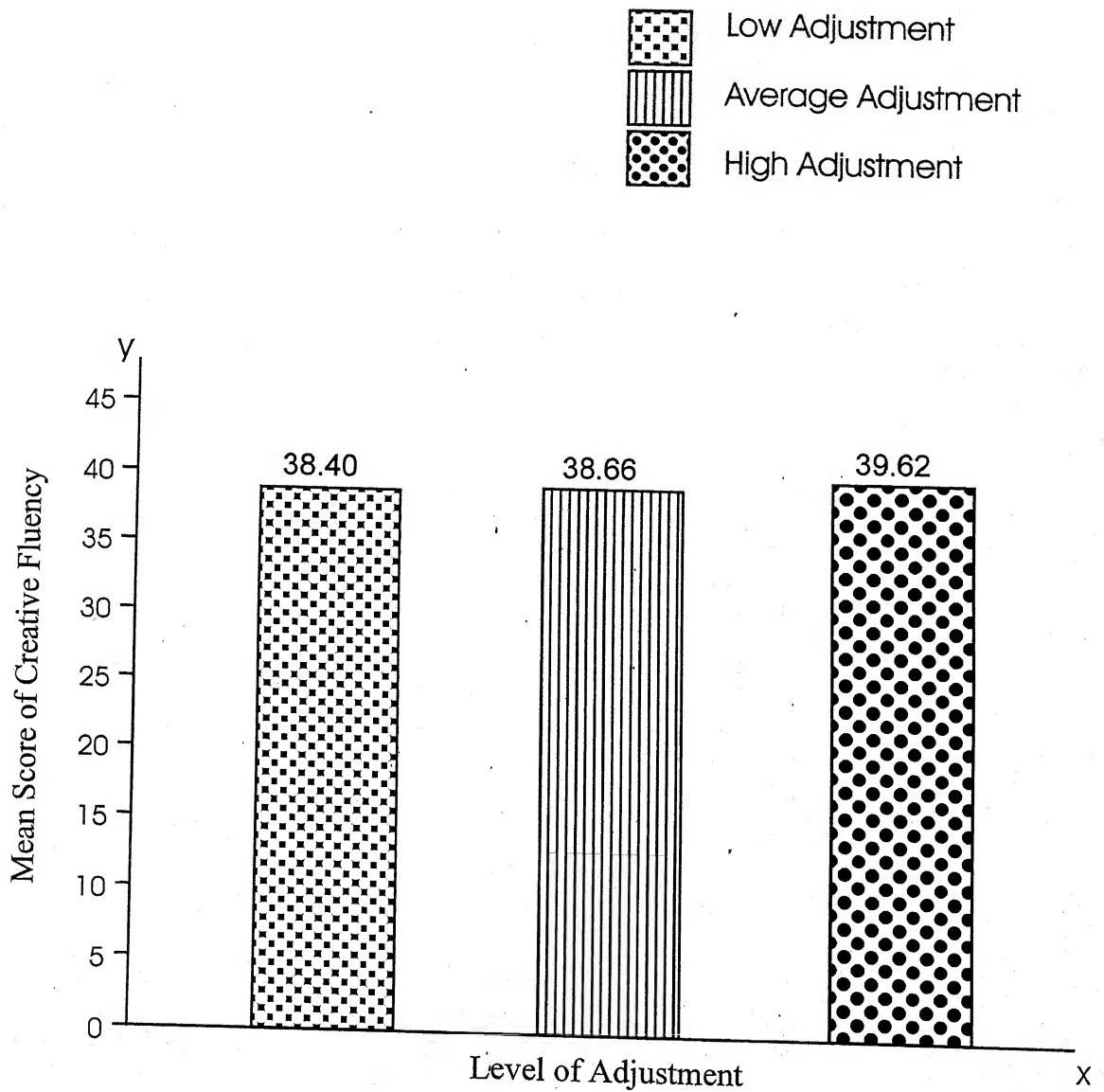
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ )

S.N.	Adjustment Level	Creative fluency				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	38.40	8.64	*.57	$t_{1-2} = .26$
2.	Average Adj.	167	38.66	8.81		$t_{2-3} = .86$
3.	High Adj.	89	39.62	8.44		$t_{1-3} = 1.06$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.13 reveals that mean score of creative fluency on low adjustment level is 38.40 and S.D. is 8.64, on average adjustment level is 38.66 and S.D. is 8.81 and on high adjustment level is 39.62 and S.D. is 8.44. The 'F' ratio for the three levels was obtained .57 not significant at .05 level. It means adjustment has little effect on creative fluency. Verification of these results was also done by 't' test computed among all the three level of adjustment 'f' value on creative fluency between low- average, average- high and low- high adjustment level were obtained  $t_{1-2} = .26$ ,  $t_{2-3} = .86$ ,  $t_{1-3} = 1.06$  not significant at .05 level. Respectively it means that there is no effect of adjustment on creative fluency.



Bar-diagram No.2 - Showing mean value of creativity fluency belonging to three levels of adjustment

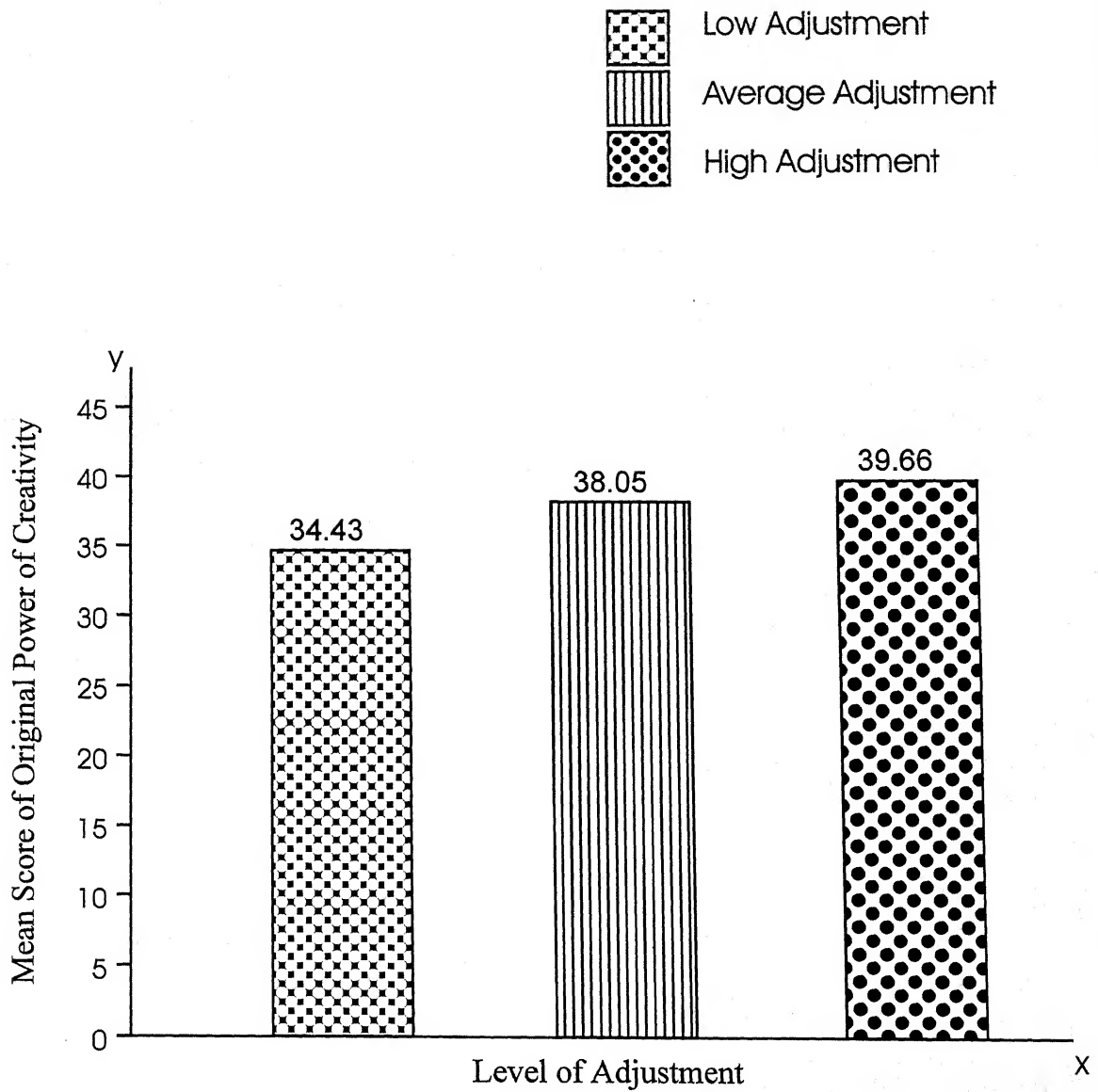
Table No.14. : Mean, S.D., 'F' ratio, 't' values on original power of creativity scores belonging three level of adjustment.  
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ .)

S.N.	Adjustment Level	Original power of creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	34.43	11.71	*9.18	$t_{1-2} = 3.09$
2.	Average Adj.	167	38.05	8.44		$t_{2-3} = 1.42$
3.	High Adj.	89	39.66	8.69		$t_{1-3} = 3.90$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.14 reveals that mean score of original power of creativity on low adjustment level is 34.43 and S.D. is 11.71, on average adjustment level is 38.05 and S.D. is 8.44 and on high adjustment level is 39.66 and S.D. is 8.69. The 'F' ratio for the three levels was obtained 9.18 significant at .01 level. It means that creativity is influenced by adjustment. Verification of these results was also done by 't' test computed among all the three level of adjustment 'f' value on original power of creativity between low- average and low- high levels were obtained  $t_{1-2} = 3.09$ ,  $t_{1-3} = 3.90$  significant at .01 level. While there is no significant difference between average- high adjustment level of creativity score.



Bar-diagram No.3 - Showing mean value of original power of creativity belonging to three levels of adjustment

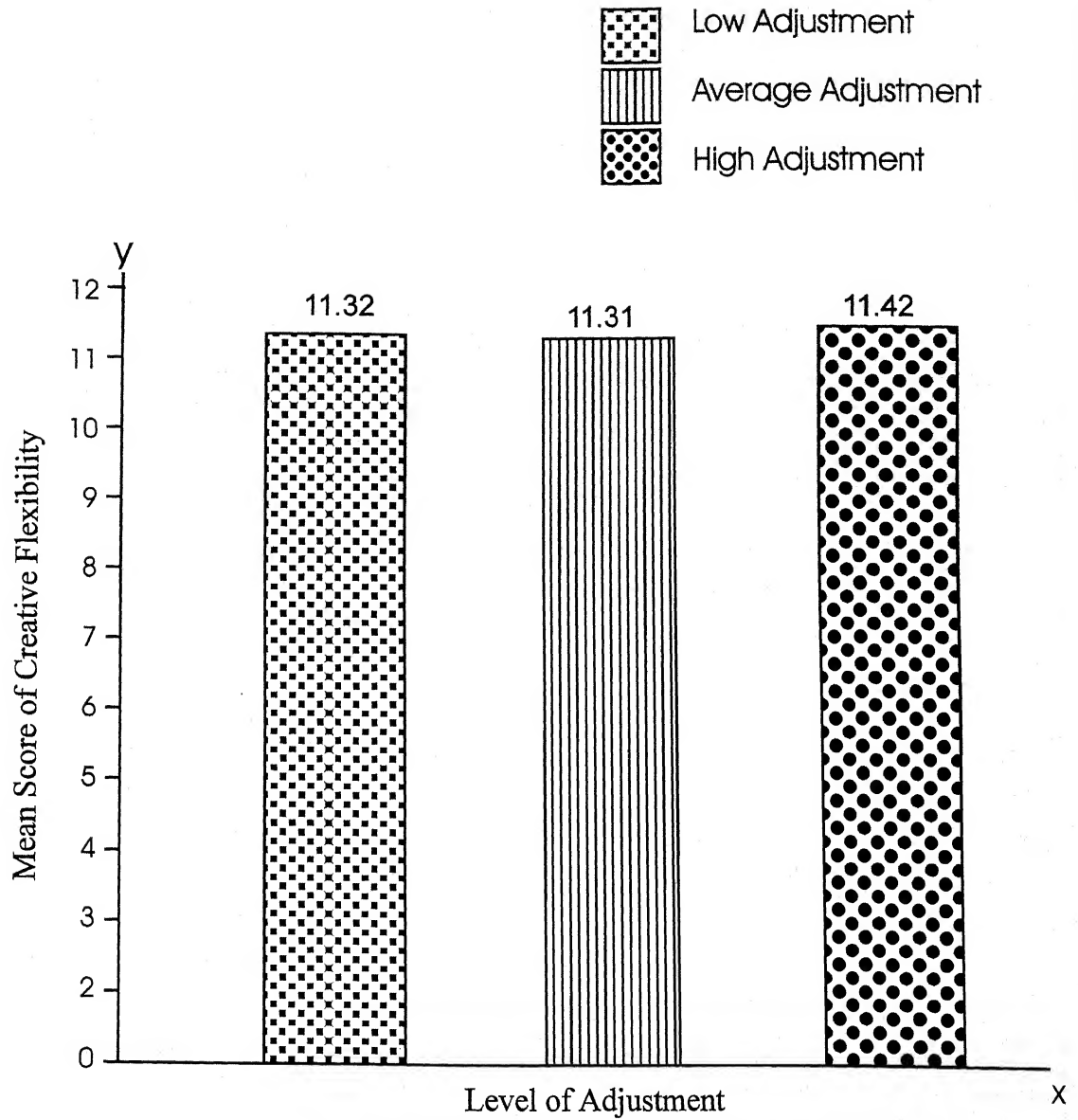
Table No.15. : Mean, S.D., 'F' ratio, 't' values on creative flexibility scores belonging three level of adjustment.  
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ .)

S.N.	Adjustment Level	Creative Flevibility				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	11.32	3.90	*.03	$t_{1-2} = .02$
2.	Average Adj.	167	11.31	3.17		$t_{2-3} = .26$
3.	High Adj.	89	11.42	3.31		$t_{1-3} = .21$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.15 reveals that mean score of creative flexibility on low adjustment level is 11.32 and S.D. is 3.90, on average adjustment level is 11.31 and S.D. is 3.17 and on high adjustment level is 11.42 and S.D. is 3.31. The 'F' ratio for the three levels was obtained .03 not significant at .05 level. It means that adjustment has little effect on creative flexibility. Verification of these results was also done by 't' test computed among all the three levels of adjustment 'f' value on creative flexibility between low-average, average-high and low-high adjustment levels were obtained  $t_{1-2} = .02$ ,  $t_{2-3} = .26$ ,  $t_{1-3} = .21$  not significant at .05 level. Respectively it means that there is no effect of adjustment on creative flexibility.



Bar-diagram No.4 - Showing mean value of creativity flexibility belonging to three levels of adjustment

Table No.16. : Mean, S.D., 'F' ratio, 't' values on ingenious solution of problem belonging three level of adjustment.  
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ )

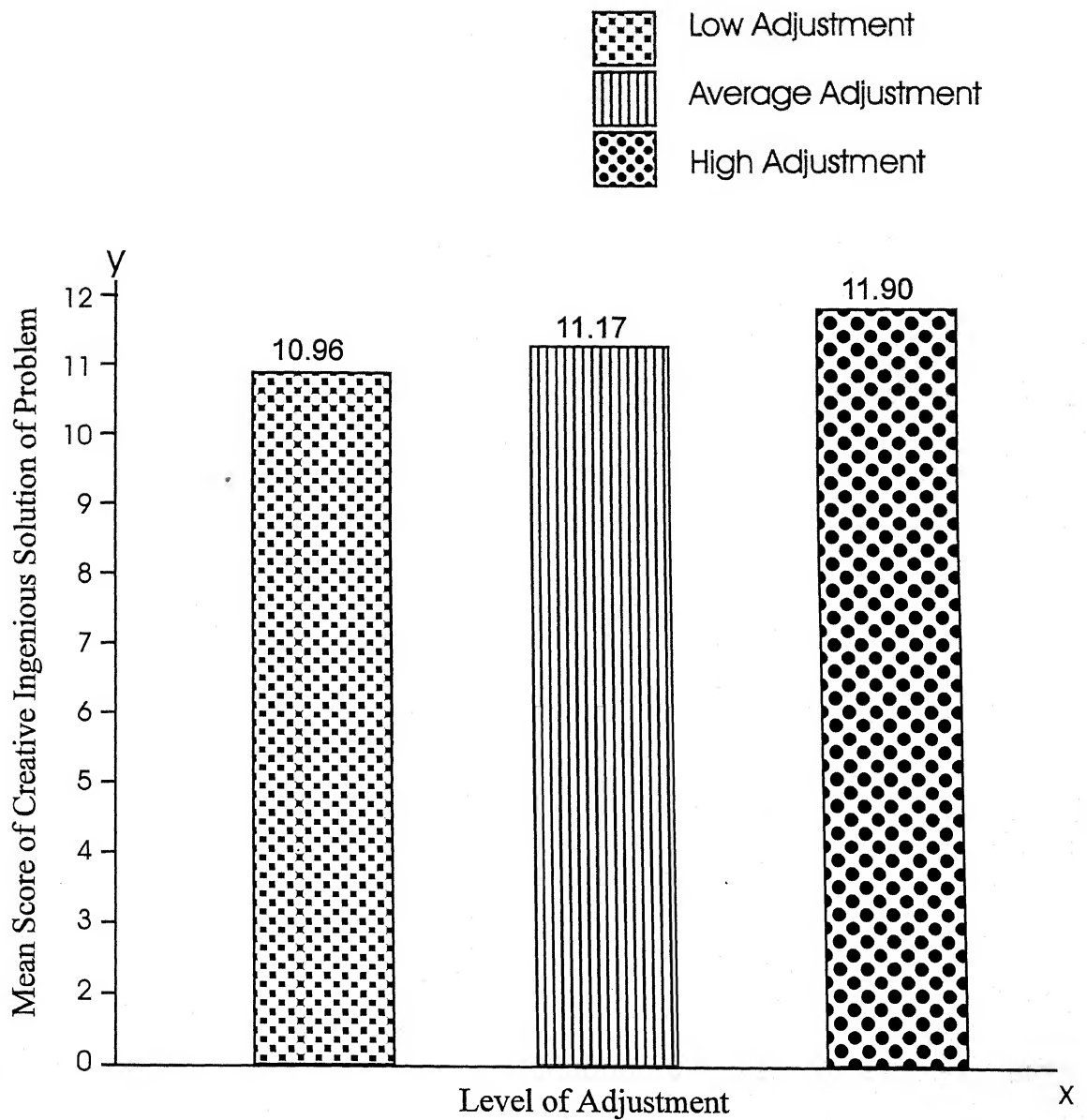
S.N.	Adjustment Level	Ingenious Solution of Problem				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	10.96	3.94	*1.83	$t_{1-2} = .48$
2.	Average Adj.	167	11.17	3.67		$t_{2-3} = 1.59$
3.	High Adj.	89	11.90	3.45		$t_{1-3} = 1.92$

\*Significant at .05 level = 3.02

\*Significant at .01 level = 4.66

Table No.16 reveals that mean score of ingenious solution of problem on low adjustment level is 10.96 and S.D. is 3.94, on average adjustment level is 11.17 and S.D. is 3.67 and on high adjustment level is 11.90 and S.D. is 3.45. The 'f' ratio for the three levels was obtained 1.83 not significant at .05 level. It means that adjustment has no effect on ingenious solution of problem. Verification of these results was also done by 't' test computed among three levels of adjustment. 'f' value on ingenious solution of problem between low average, average-high and low- high adjustment levels were obtained  $t_{1-2} = .48$ ,  $t_{2-3} = 1.59$  and  $t_{1-3} = 1.92$  not significant at .05 level. Respectively it means that there is no effect of adjustment on creativity.





Bar-diagram No.5 - Showing mean value of creative ingenious solution of problem belonging to three levels of adjustment

Table No.17. : Mean, S.D., 'F' ratio, 't' values on total creativity scores belonging three level of adjustment.

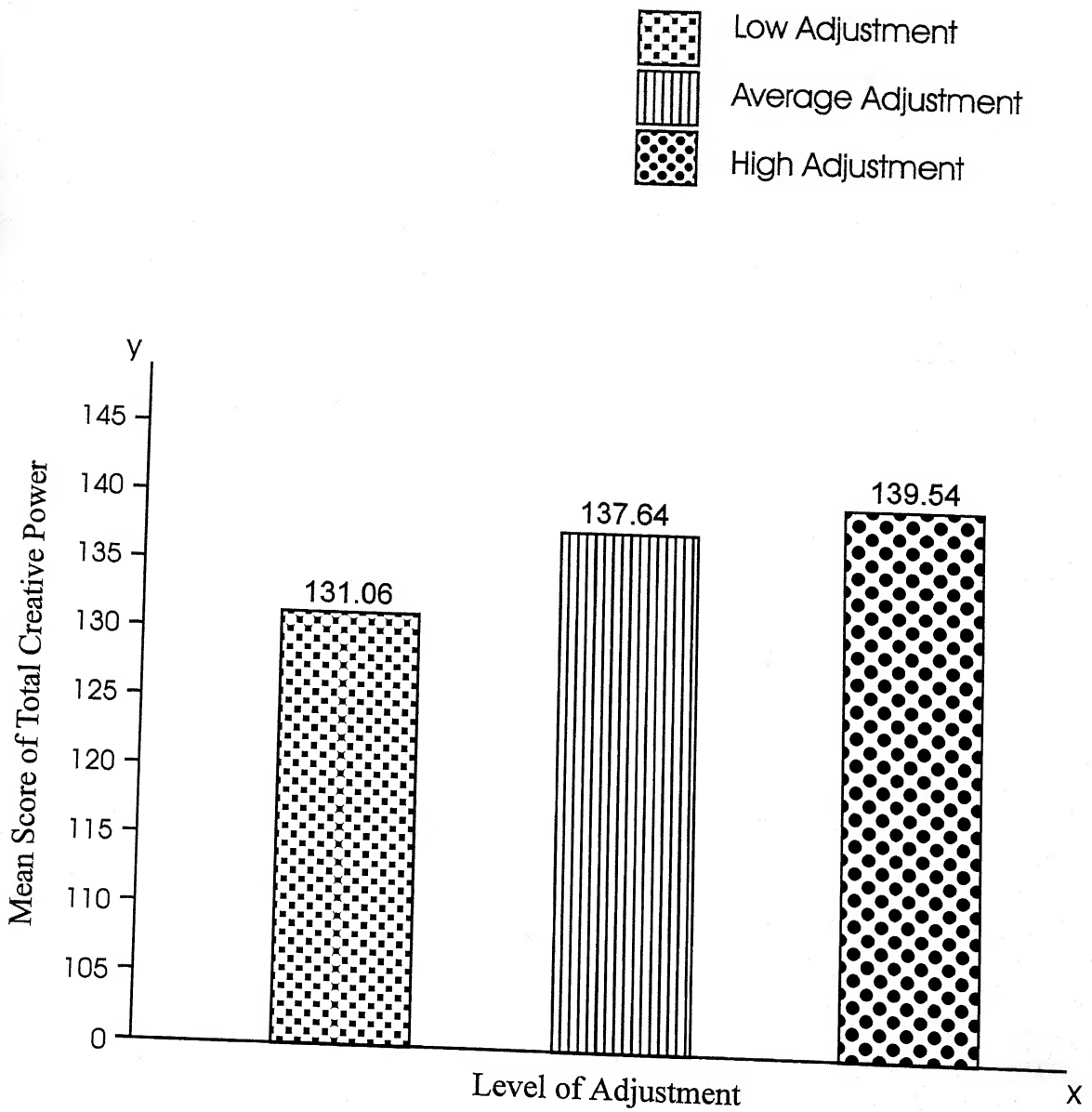
( $N_1 = 144$ ,  $N_2 = 167$  and  $N_3 = 89$ )

S.N.	Adjustment Level	Creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Adj.	144	131.06	22.51	*5.16	$t_{1-2} = 2.81$
2.	Average Adj.	167	137.64	18.02		$t_{2-3} = .58$
3.	High Adj.	89	139.54	27.70		$t_{1-3} = 2.44$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.17 reveals that mean score of total creativity (including five areas) on low adjustment level is 131.06 and S.D. is 22.51, on average adjustment level is 137.64 and S.D. is 18.02 and on high adjustment level is 139.54 and S.D. is 27.70. The 'F'ratio for the three levels was obtained 5.16 significant at .01 level. It means we can assume with 99% confidence that students of high adjustment level use their creativity and performs the best among other levels. Verification of these results was also done by 't' test computed among three levels of adjustment. 'f' value on total creativity between low-average and low-high adjustment levels were obtained  $t_{1-2} = 2.81$ ,  $t_{1-3} = 2.44$  significant at .01 level. While there is no significant difference between average-high adjustment level of creativity scores.



Bar-diagram No.6 - Showing mean value of total creative power belonging to three levels of adjustment

## **A<sub>2</sub> - THE EFFECT OF SELF-CONCEPT UPON CREATIVITY :**

In this section an attempt has been made to study the effect of self-concept upon creativity. The creativity is measured by the inventory of Dr. N.S.Chauhan and Dr. Govind Tiwari. This scale measures creativity in five areas namely (1) Creative production (2) Creative Fluency (3) Original power (4) Flexibility (5) Ingenious solution of problems. For measuring self-concept, the inventory of Dr. Mukta Rani Rastogi was administered on the basis of the quartile deviation that is Q1 and Q3. The self-concept scores were classified in three groups. i.e.-

- (1) Creativity scores on low self-concept ( $N_1 = 100$ )
- (2) Creativity scores on average self-concept ( $N_2 = 189$ )
- (3) Creativity scores on high self-concept ( $N_3 = 111$ )

In order to know whether the self-concept affects the creativity the 'F' ratio and 't' test have been used among the three levels of self-concept of creativity scores. The purpose of calculating 'F' ratio is obvious since comparison of three groups is possible by 'F' value. but 't' test which is a powerful test, is applied to observe intergroup differences.

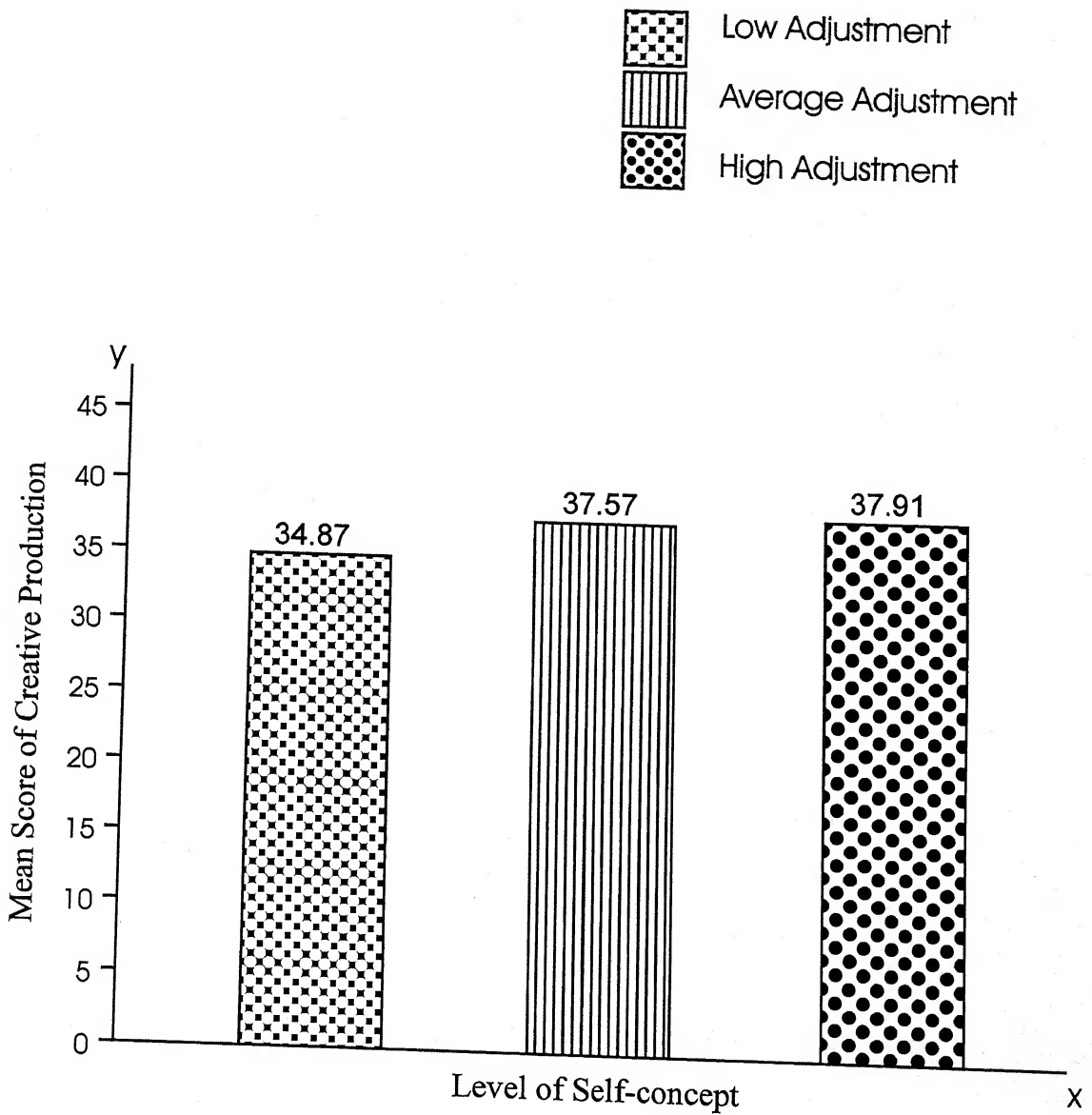
Table No.18.: Mean, S.D., 'F' ratio, 't' values on creative product belonging three self-concept levels.  
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Creative Production				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	34.87	8.18	*3.38	$t_{1-2} = 2.73$
2.	Average	189	37.57	7.72		$t_{2-3} = .26$
3.	High	111	37.91	12.74		$t_{1-3} = 2.08$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.18 reveals that mean score of creative production on low Self-concept level is 34.87 and S.D. is 8.18, on average Self-concept level is 37.57 and S.D. is 7.72 and on high Self-concept level is 37.91 and S.D. is 12.74. The 'F' ratio for the three levels was obtained 3.38 significant at .05 level. It means that creative production of creativity is influenced by Self-concept. Verification of these results was also done by 't' test computed among all the three levels of Self-concept. 'f' value on creative production between low- average and low-high Self-concept levels were obtained  $t_{1-2} = 2.73$ ,  $t_{1-3} = 2.08$ .  $t_{1-2}$  is significant at .01 level and  $t_{1-3}$  is significant at .05 level. While there is no significant difference between average-high self-concept level of creative production of creativity score.



Bar-diagram No.7 - Showing mean value of creative production belonging to three levels of self-concept

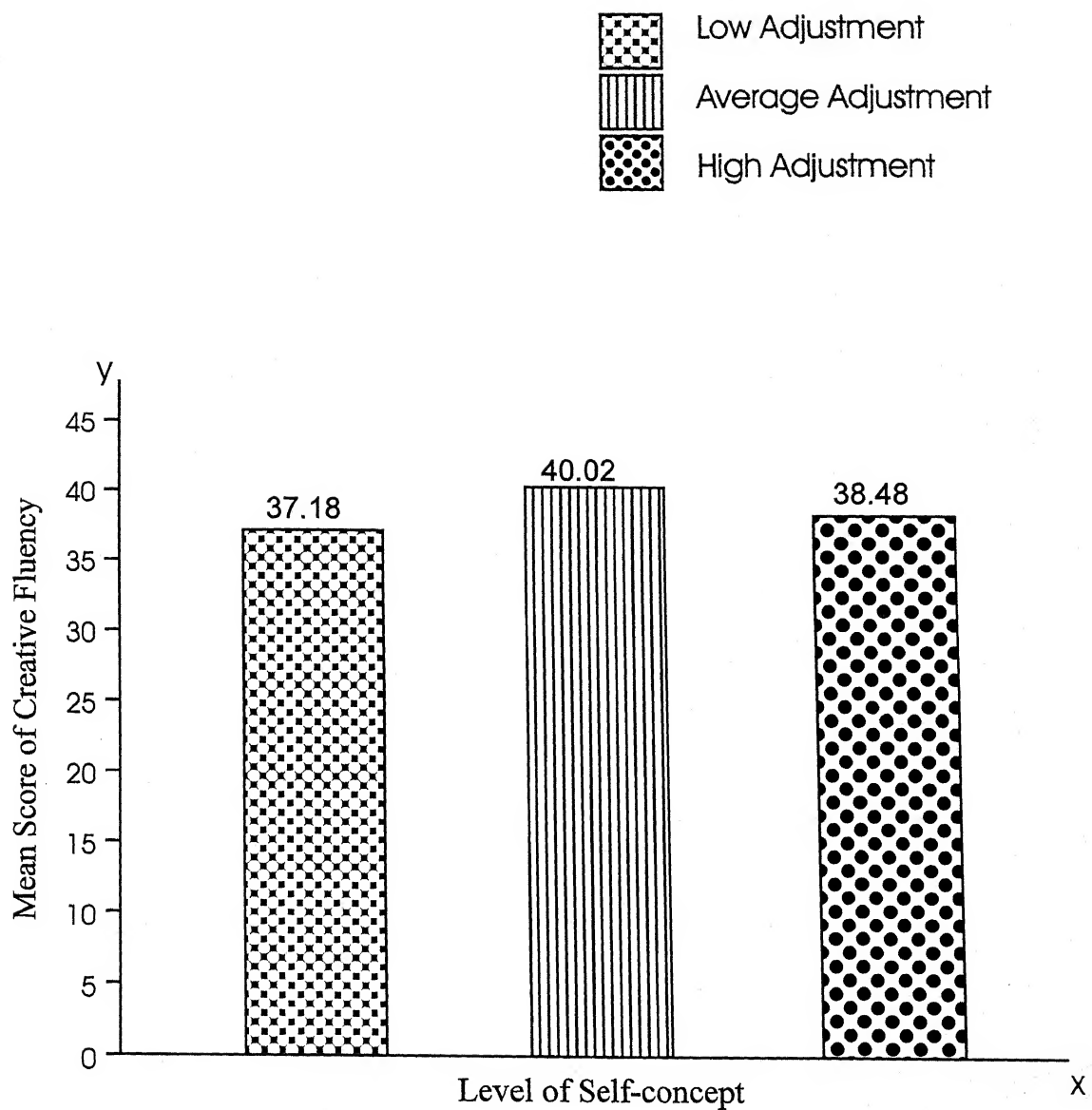
Table No.19. : Mean, S.D., 'F' ratio, 't' values on creative fluency belonging three self-concept levels.  
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Creative fluency				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	37.18	7.12	*3.85	$t_{1-2} = 3.23$
2.	Average	189	40.02	7.18		$t_{2-3} = 1.31$
3.	High	111	38.48	11.19		$t_{1-3} = 1.02$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.19 reveals that mean score of creative fluency on low Self-concept level is 37.18 and S.D. is 7.12, on average Self-concept level is 40.02 and S.D. is 7.18 and on high Self-concept level is 38.48 and S.D. is 11.19. The 'F' ratio for the three levels was obtained 3.85 significant at .05 level. It means that we can assume with 95% confidence creative fluency of creativity is influenced by Self-concept. Verification of these results was also done by 't' test computed among all the three levels of Self-concept. 't' value on creative fluency between low- average Self-concept level was obtained  $t_{1-2} = 3.23$  significant at .01 level While there is no significant difference between average-high and low- high self-concept level of creative fluency score.



Bar-diagram No.8 - Showing mean value of creative fluency belonging to three levels of self-concept



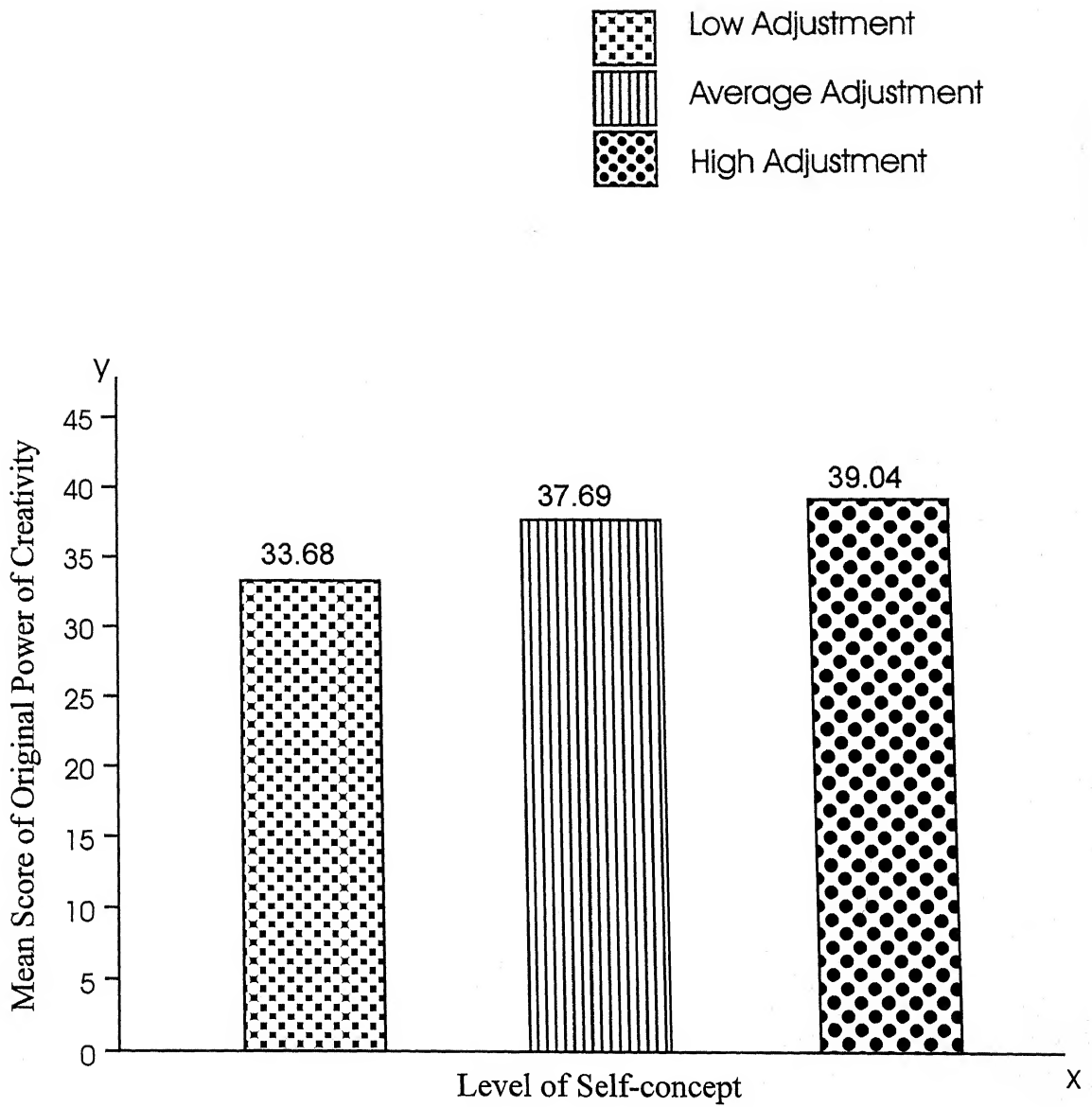
Table No.20. : Mean, S.D., 'F' ratio, 't' values on original power of creativity belonging three self-concept levels.  
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Original Power of creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	33.68	10.56	*9.51	$t_{1-2} = 3.26$
2.	Average	189	37.69	8.72		$t_{2-3} = 1.26$
3.	High	111	39.04	9.08		$t_{1-3} = 3.94$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.20 reveals that mean score of Original power of creativity on low Self-concept level is 33.68 and S.D. is 10.56, on average Self-concept level is 37.69 and S.D. is 8.72 and on high Self-concept level is 39.04 and S.D. is 9.08 The 'F' ratio for the three levels was obtained 9.51 significant at .01 level. It means that with 99% confidence we can prove that original power of creativity is influenced by Self-concept. Verification of these results was also done by 't' test computed among three levels of Self-concept. 't' value on Original power of creativity between low-average and low-high. Self-concept levels were obtained  $t_{1-2} = 3.26$  and  $t_{1-3} = 3.94$  significant at .01 level While there is no significant difference between average-high self-concept level of Original power of creativity score.



Bar-diagram No.9 - Showing mean value of original power of creativity belonging to three levels of self-concept

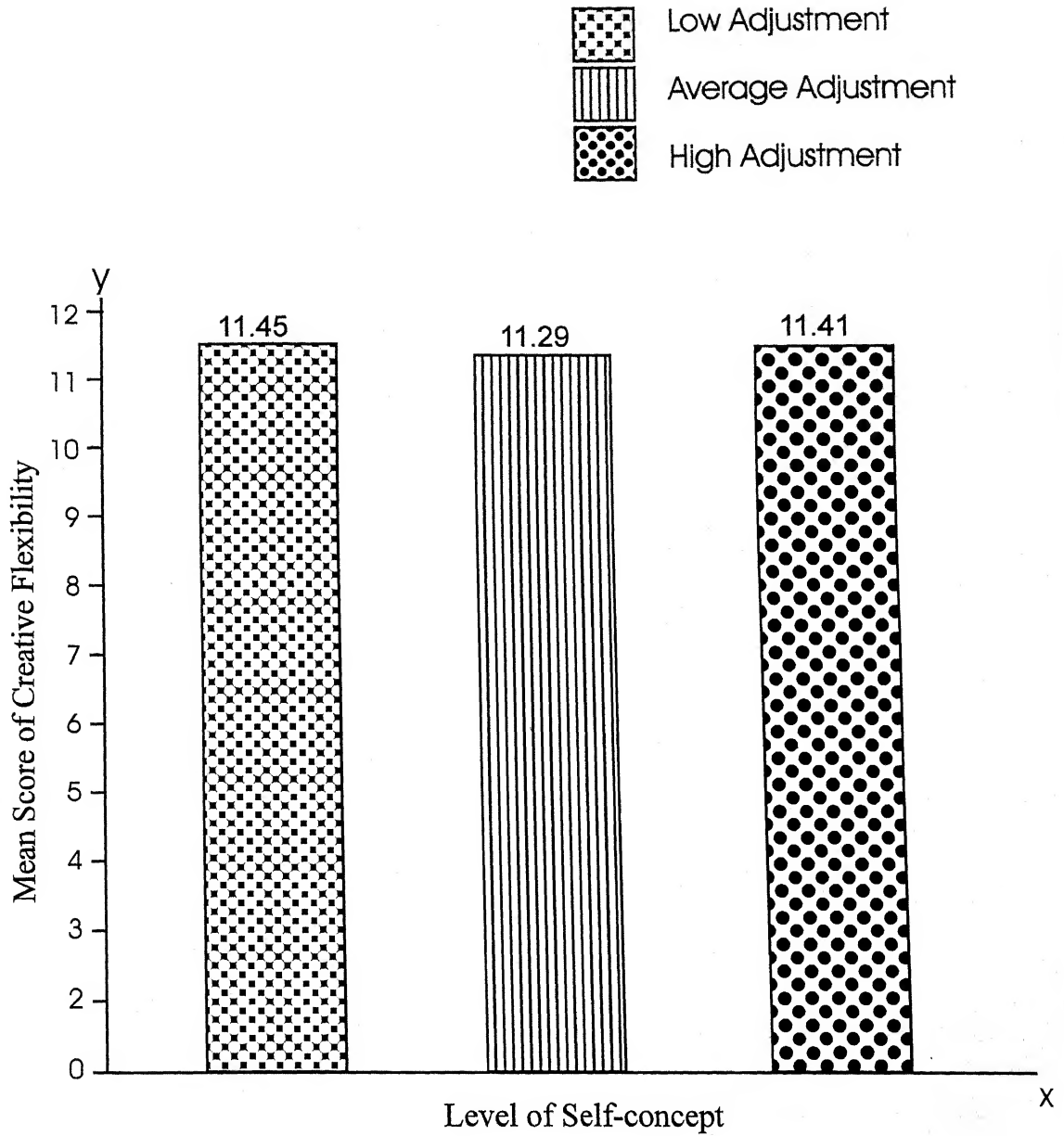
Table No.21. : Mean, S.D., 'F' ratio, 't' values on creative flexibility belonging three self-concept levels.  
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Creative Flexibility				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	11.45	3.67	*0.09	$t_{1-2} = .36$
2.	Average	189	11.29	3.36		$t_{2-3} = .31$
3.	High	111	11.41	3.20		$t_{1-3} = .09$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.21 reveals that mean score of Creative flexibility on low Self-concept level is 11.45 and S.D. is 3.67, on average Self-concept level is 11.29 and S.D. is 3.36 and on high Self-concept level is 11.41 and S.D. is 3.20. The 'F' ratio for the three levels was obtained .09 not significant at .05 level. It means self-concept has little effect on Creative flexibility. Verification of these results was also done by 't' test computed among three levels of Self-concept. 't' value on Creative flexibility between low-average, average-high and low-high Self-concept levels were obtained  $t_{1-2} = 0.36$ ,  $t_{2-3} = 0.31$  and  $t_{1-3} = 0.09$  not significant at .05 level. Respectively it means that there is no effect of self-concept on creative flexibility.



Bar-diagram No.10 - Showing mean value of creative flexibility belonging to three levels of self-concept

Table No.22. : Mean, S.D., 'F' ratio, 't' values on ingenious solution of problem belonging three self-concept levels.

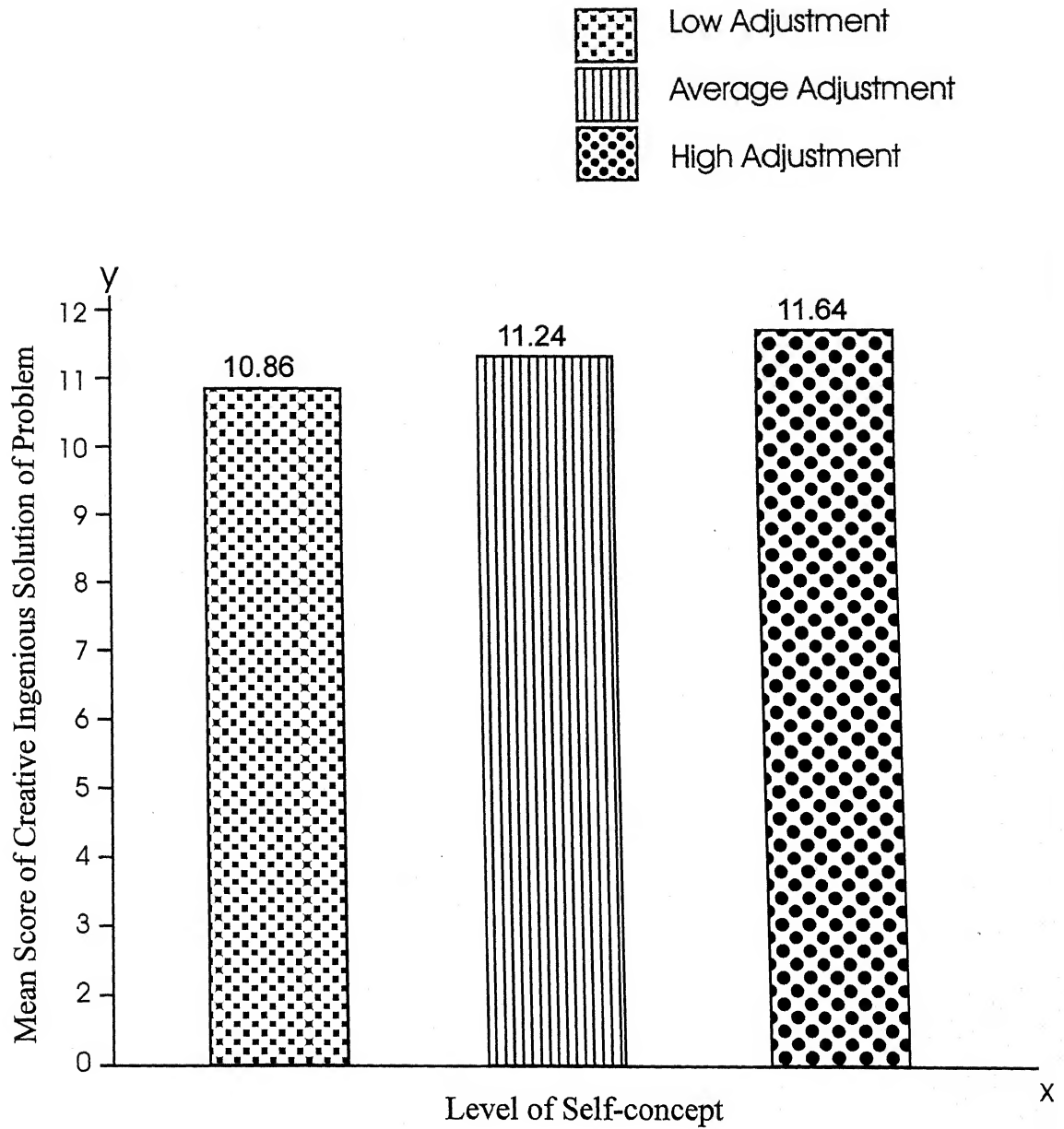
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Ingenious solution of problem				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	10.86	3.96	*1.15	$t_{1-2} = .79$
2.	Average	189	11.24	3.74		$t_{2-3} = .95$
3.	High	111	11.64	3.49		$t_{1-3} = 1.5$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.22 reveals that mean score of Ingenious solution of problem on low Self-concept level is 10.86 and S.D. is 3.96, on average Self-concept level is 11.24 and S.D. is 3.74 and on high Self-concept level is 11.64 and S.D. is 3.49. The 'F' ratio for the three levels was obtained 1.15 not significant at 0.05 level. It means that Ingenious solution of problem not influence by self-concept. Verification of these results was also done by 't' test computed among three levels of Self-concept. 't' value on Ingenious solution of problem in between low average, average- high and low-high Self-concept levels were obtained  $t_{1-2} = 0.79$ ,  $t_{2-3} = 0.95$  and  $t_{1-3} = 1.5$  not significant at .05 level. Respectively it means that there is no effect of self-concept on creative Ingenious solution of problem.



Bar-diagram No.11 - Showing mean value of creative ingenious solution of problem belonging to three levels of self-concept

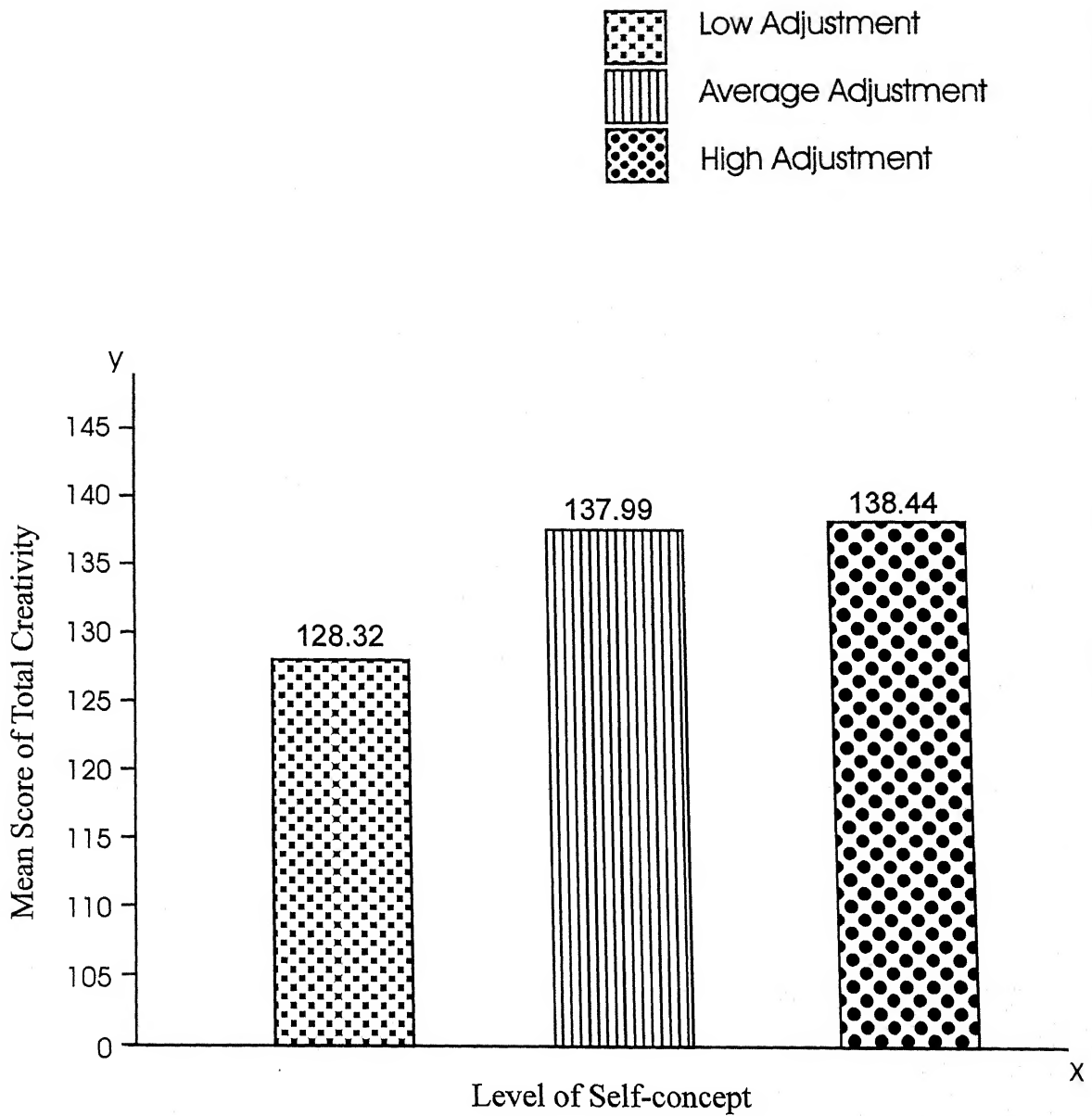
Table No.23. : Mean, S.D., 'F' ratio, 't' values on total creativity scores belonging three self-concept levels.  
( $N_1 = 100$ ,  $N_2 = 189$  and  $N_3 = 111$ )

S.N.	Self-concept Level	Total Creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low	100	128.32	16.69	*11.06	$t_{1-2} = 4.86$
2.	Average	189	137.99	17.47		$t_{2-3} = .19$
3.	High	111	138.44	20.34		$t_{1-3} = 3.97$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.23 reveals that mean score of Creativity (including five areas) on low Self-concept level is 128.32 and S.D. is 16.69, on average Self-concept level is 137.99 and S.D. is 17.47 and on high Self-concept level is 138.44 and S.D. is 20.34. The 'F' ratio for the three levels was obtained 11.06 significant at .01 level. It means that creativity is influenced by self-consept. Verification of these results was also done by 't' test computed among three levels of Self-concept. 't' value on total creativity between low-average and low-high self-concept levels were obtained  $t_{1-2} = 4.86$ ,  $t_{1-3} = 3.97$  significant at .01 level. While there is no significant difference between average-high self-concept level of creativity score.



Bar-diagram No.12 - Showing mean value of total creative power belonging to three levels of self-concept



**A<sub>3</sub> - THE EFFECT OF NEED-ACHIEVEMENT UPON CREATIVITY :**

In this section an attempt has been made to study the effect of Need-achievement upon Creativity. The creativity is measured by the inventory of Dr. N.S.Chauhan and Dr. Govind Tiwari. This scale measures creativity in five areas namely (1) Creative production (2) Creative Fluency (3) Original power (4) Flexibility (5) Ingenious solution of problems. For measuring Need-achievement test of Dr. Pratibha Deo and Asha Mohan was administered on the basis of the quartile deviation that is Q1 and Q3. The Need-achievement scores were classified in three groups. i.e.-

- (1) Creativity scores on low Need-achievement ( $N_1 = 110$ )
- (2) Creativity scores on average Need-achievement ( $N_2 = 188$ )
- (3) Creativity scores on high Need-achievement ( $N_3 = 102$ )

In order to know whether the Need-achievement affects the creativity the 'F' ratio and 't' test have been used among the three levels of Need-achievement of creativity scores. The purpose of calculating 'F' ratio is obvious since comparison of three groups is possible by 'F' value. but 't' test which is a powerful test, is applied to observe intergroup differences.

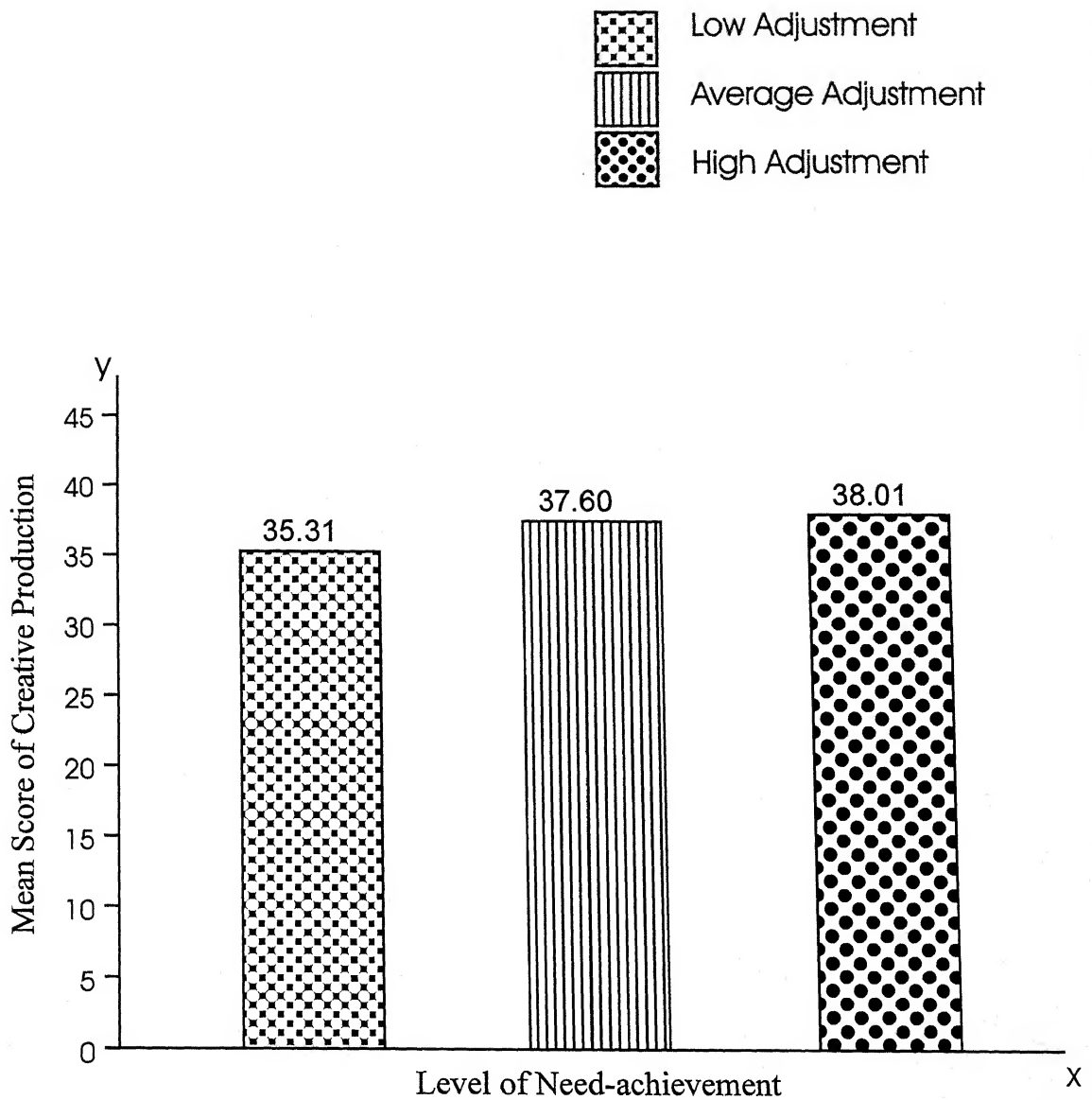
Table No.24. : Mean, S.D., 'F' ratio, 't' values on total creative production belonging three need-achievement levels.  
( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

S.N.	Need-achievement Level	Creative production				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	35.31	8.80	*3.17	$t_{1-2} = 2.22$
2.	Average Need-ach.	188	37.60	8.29		$t_{2-3} = .37$
3.	High Need-ach.	102	38.01	9.42		$t_{1-3} = 2.16$

\*Significant at .05 level = 3.02

\*Significant at .01 level = 4.66

Table No.24 reveals that mean score of Creativity production on low need-achievement level is 35.31 and S.D. is 8.80, on average need-achievement level is 37.60 and S.D. is 8.29 and on high need-achievement level is 38.01 and S.D. is 9.42. The 'F' ratio for the three levels was obtained 3.17 significant at .05 level. it means that we can assume with 95% confidence that creative production of creativity is influenced by need-achievement. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on that creative Production between low-average and low-high need achievement levels were obtained  $t_{1-2} = 2.22$  and  $t_{1-3} = 2.16$  significant at .05 level. While there is no significant difference between average-high need-achievement level of creative production score.



Bar-diagram No.13 - Showing mean value of creative production belonging to three levels of need-achievement

Table No.25. : Mean, S.D., 'F' ratio, 't' values on creative fluency belonging three need-achievement levels.

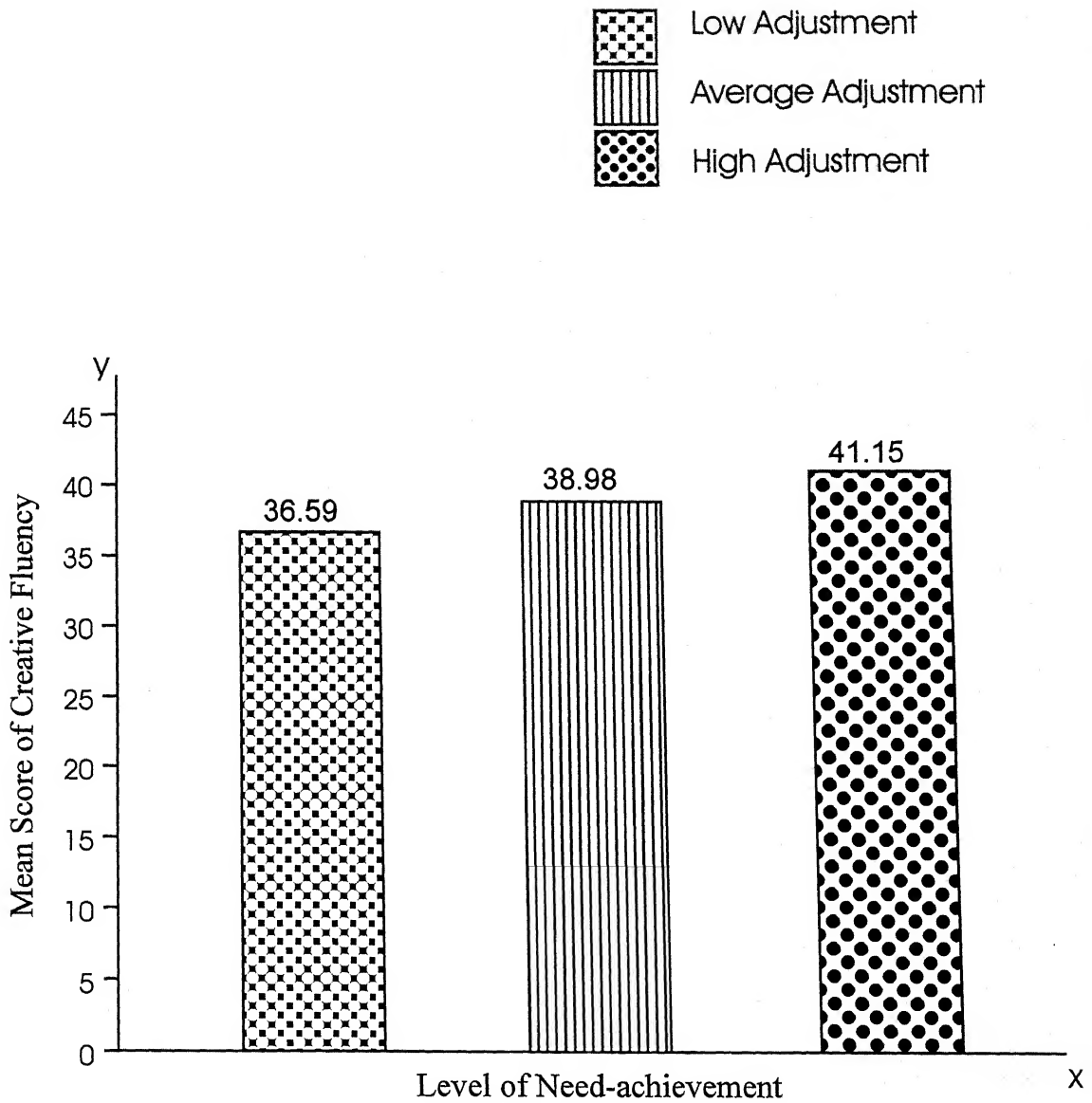
( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

S.N.	Need-achievement Level	Creative fluency				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	36.59	7.97	*7.62	$t_{1-2} = 2.41$
2.	Average Need-ach.	188	38.98	8.68		$t_{2-3} = 2.03$
3.	High Need-ach.	102	41.15	8.77		$t_{1-3} = 3.93$

\*Significant at .05 level = 3.02

\*Significant at .01 level = 4.66

Table No.25 reveals that mean score of Creative fluency on low need-achievement level is 36.59 and S.D. is 7.97, on average need-achievement level is 38.98 and S.D. is 8.68 and on high need-achievement level is 41.15 and S.D. is 8.77. The 'F' ratio for the three levels was obtained 7.62 significant at .01 level. It means that we can assume with 99% confidence that creative fluency of creativity is influenced by need-achievement. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on creative fluency between low-average, average-high and low-high need achievement levels were obtained  $t_{1-2} = 2.41$ ,  $t_{2-3} = 2.03$  significant at .05 level and  $t_{1-3} = 3.93$  significant at .01 level.



Bar-diagram No.14 - Showing mean value of creative fluency belonging to three levels of need-achievement

Table No.26. : Mean, S.D., 'F' ratio, 't' values on original power of creativity belonging three need-achievement levels.

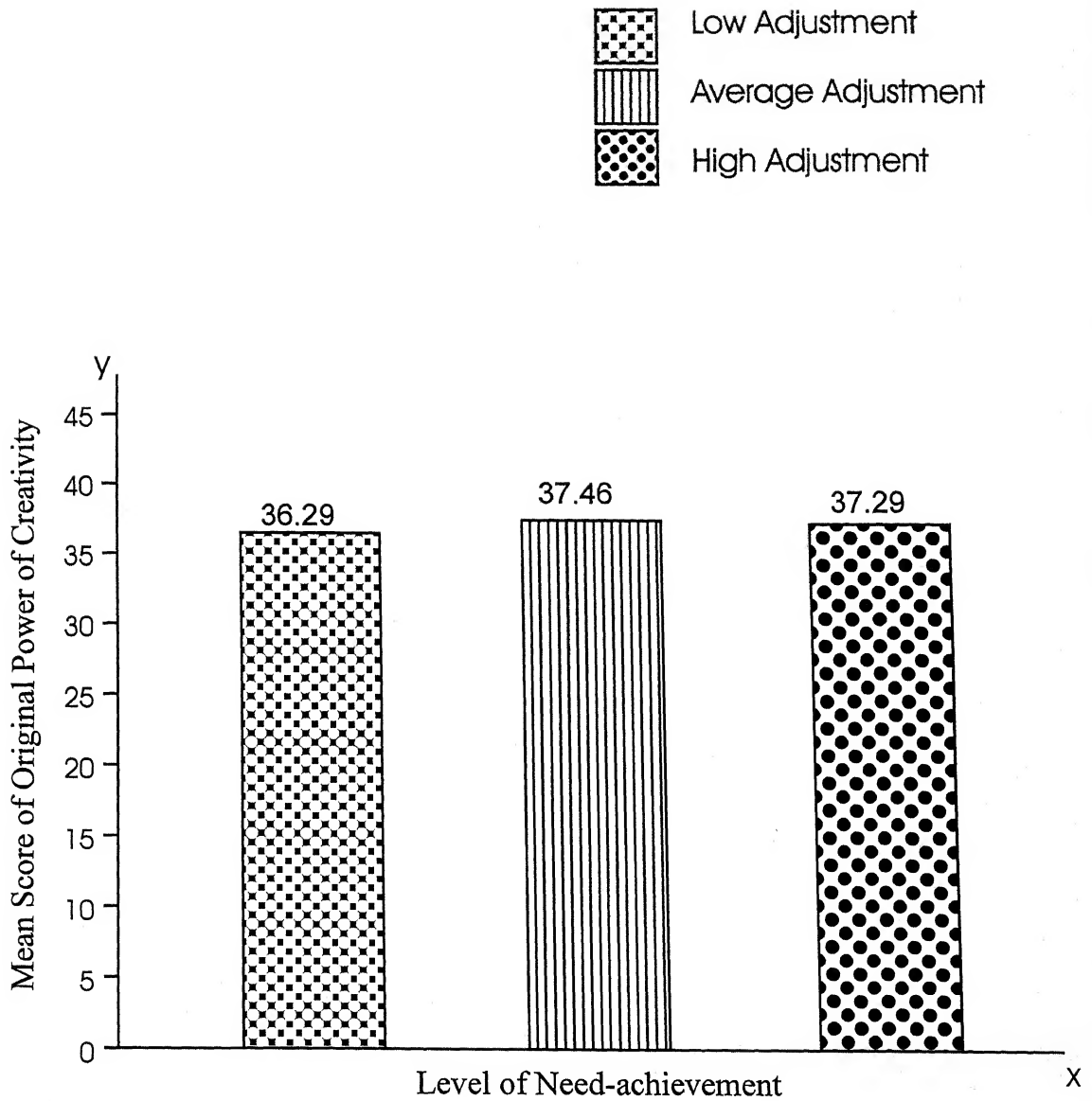
( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

S.N.	Need-achievement Level	Original power of creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	36.29	10.19	*0.54	$t_{1-2} = 1.01$
2.	Average Need-ach.	188	37.46	8.85		$t_{2-3} = 0.15$
3.	High Need-ach.	102	37.29	9.46		$t_{1-3} = 0.74$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.26 reveals that mean score of original power of creativity on low need-achievement level is 36.29 and S.D. is 10.19, on average need-achievement level is 37.46 and S.D. is 8.85 and on high need-achievement level is 37.29 and S.D. is 9.46. The 'F' ratio for the three levels was obtained .54 not significant at .05 level. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on that original power of creativity between low-average, average-high and low-high need achievement levels were obtained  $t_{1-2} = 1.01$  and  $t_{2-3} = 0.15$  and  $t_{1-3} = 0.74$  not significant at .05 level. Respectively it means that there is no effect of need-achievement on original power of creativity.



Bar-diagram No.15 - Showing mean value of original power of creativity belonging to three levels of need-achievement

Table No.27. : Mean, S.D., 'F' ratio, 't' values on creative flexibility belonging three need-achievement levels.

( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

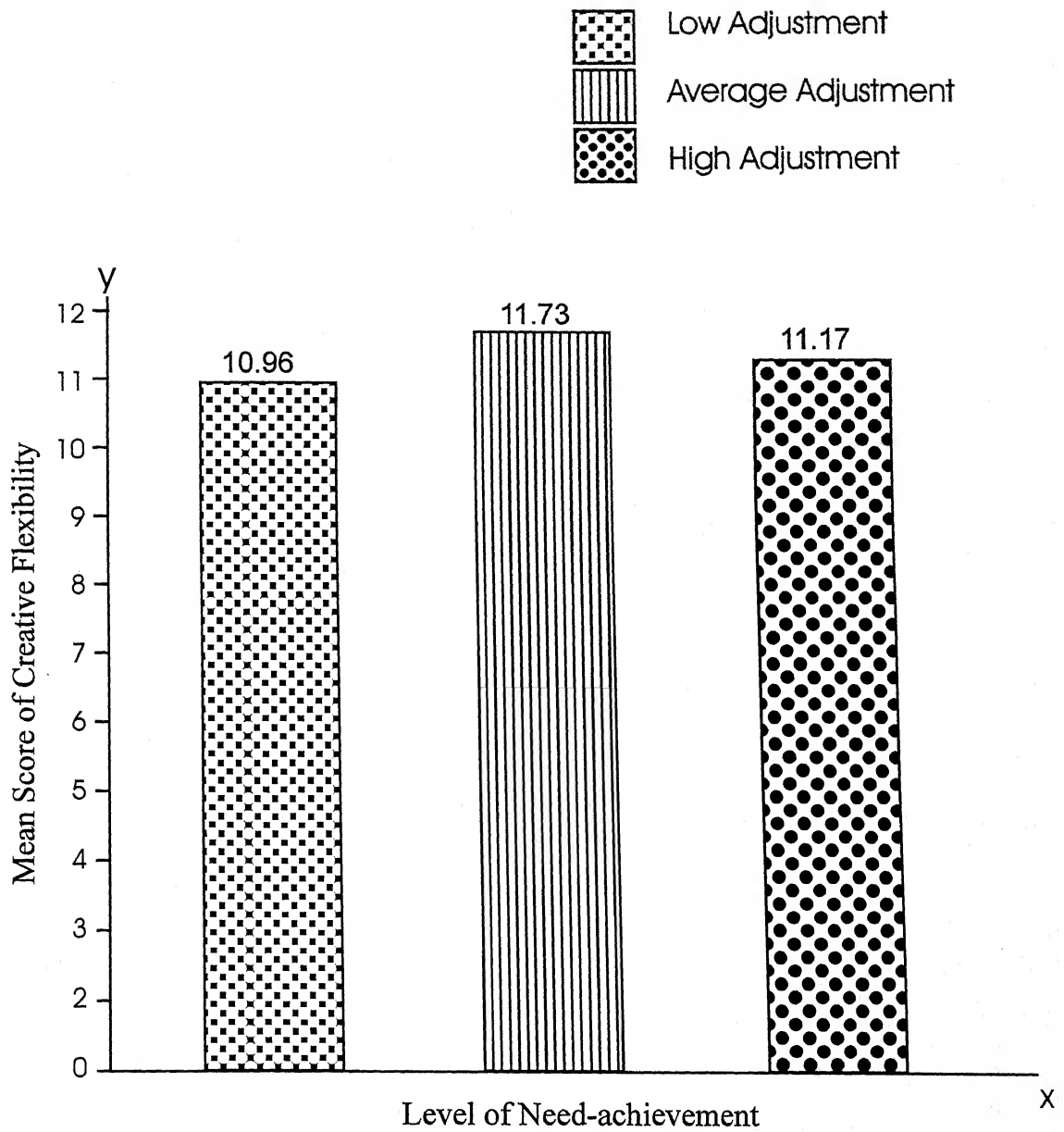
S.N.	Need-achievement Level	Creative Flexibility				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	10.96	3.41	*1.96	$t_{1-2} = 1.83$
2.	Average Need-ach.	188	11.73	3.43		$t_{2-3} = 1.27$
3.	High Need-ach.	102	11.17	3.59		$t_{1-3} = .43$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.27 reveals that mean score of creative flexibility on low need-achievement level is 10.96 and S.D. is 3.41, on average need-achievement level is 11.73 and S.D. is 3.43 and on high need-achievement level is 11.17 and S.D. is 3.59. The 'F' ratio for the three levels was obtained 1.96 not significant at .05 level. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on that creative flexibility between low-average, average-high and low-high levels were obtained  $t_{1-2} = 1.83$ ,  $t_{2-3} = 1.27$  and  $t_{1-3} = 0.43$  not significant at .05 level. Respectively it means that there is no effect of need-achievement on creative flexibility.





Bar-diagram No.16 - Showing mean value of creative flexibility belonging to three levels of need-achievement

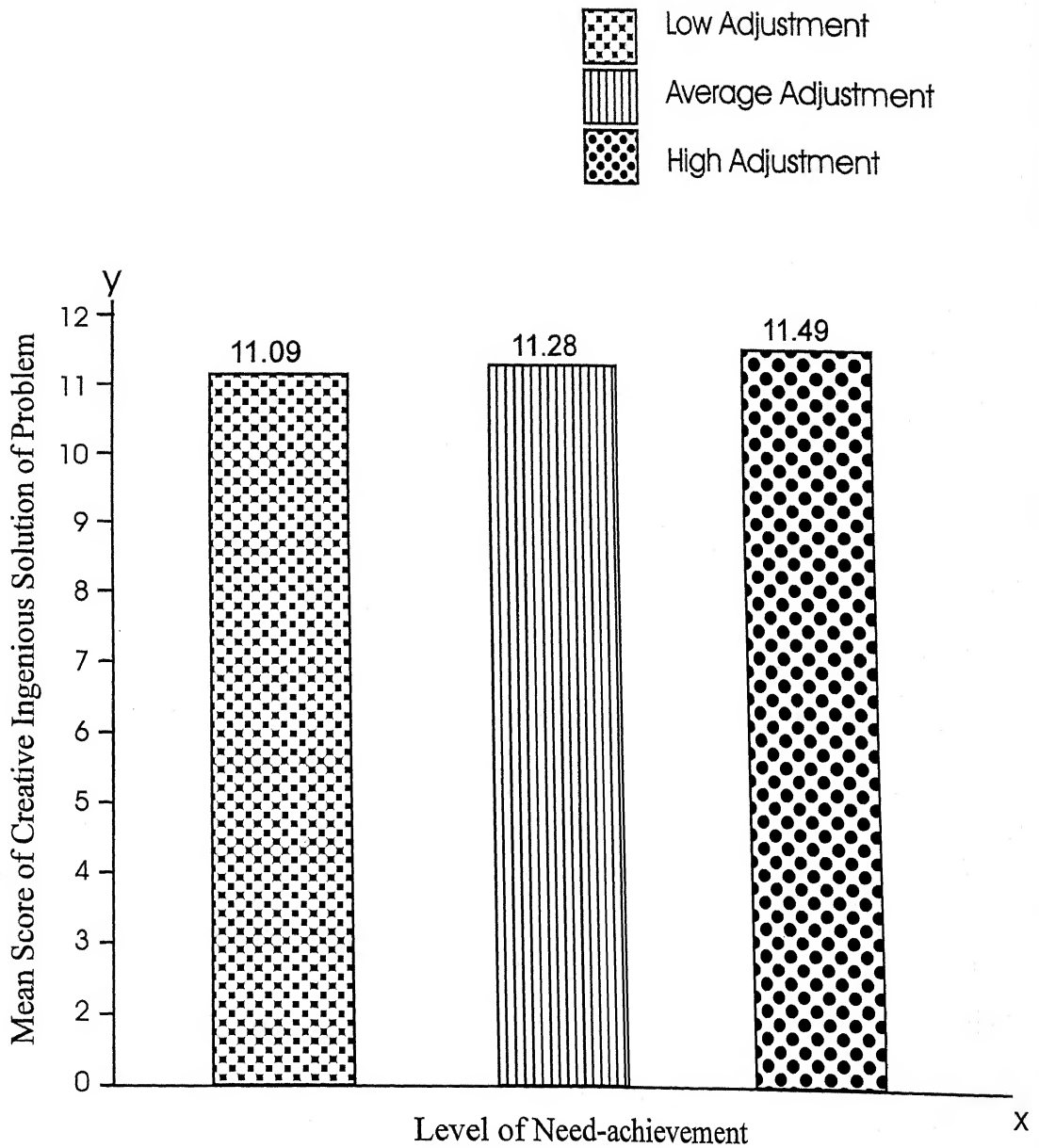
Table No.28. : Mean, S.D., 'F' ratio, 't' values on ingenious solution of problem belonging three need-achievement levels.  
( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

S.N.	Need-achievement Level	Ingenious solution of problem				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	11.09	3.90	*0.30	$t_{1-2} = 0.41$
2.	Average Need-ach.	188	11.28	3.73		$t_{2-3} = 0.48$
3.	High Need-ach.	102	11.49	3.54		$t_{1-3} = 0.78$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.28 reveals that mean score of ingenious solution of problem on low need-achievement is 11.09 and S.D. is 3.90, on average need-achievement level is 11.28 and S.D. is 3.73 and on high need-achievement level is 11.49 and S.D. is 3.54. The 'F' ratio for the three levels was obtained .30 not significant at .05 level. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on ingenious solution of problem between low-average, average-high and low-high need-achievement levels were obtained  $t_{1-2} = 0.41$ ,  $t_{2-3} = 0.48$  and  $t_{1-3} = 0.78$  not significant at .05 level. Respectively it means that there is no effect of need-achievement on ingenious solution of the problem.



Bar-diagram No.17- Showing mean value of creative ingenious solution of problem belonging to three levels of need-achievement

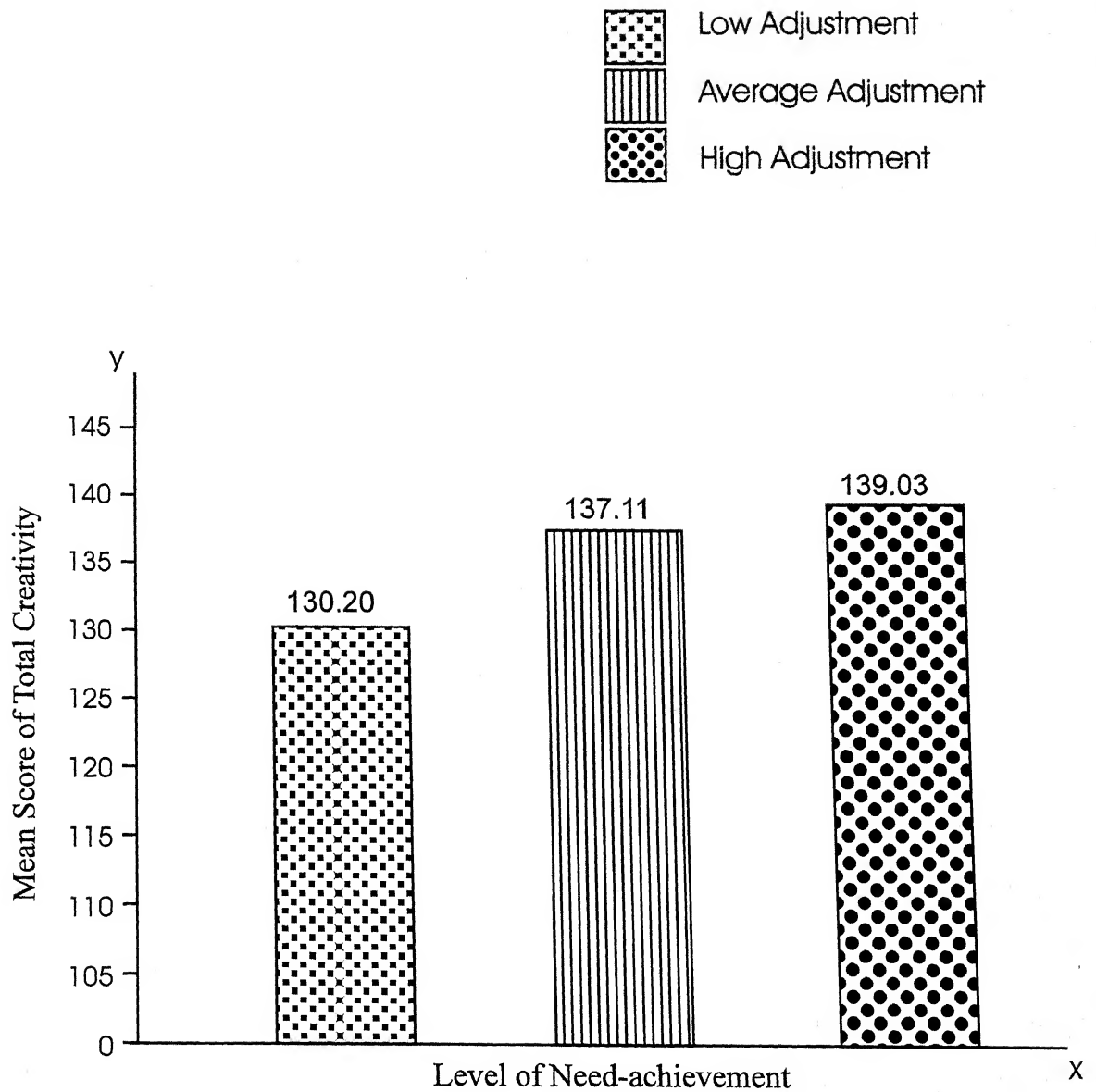
Table No.29. : Mean, S.D., 'F' ratio, 't' values on total creativity scores belonging three need-achievement levels.  
( $N_1 = 110$ ,  $N_2 = 188$  and  $N_3 = 102$ )

S.N.	Need-achievement Level	Total creativity				
		N	Mean	S.D.	F-ratio	't' Value
1.	Low Need-ach.	110	130.2	19.39	*7.16	$t_{1-2} = 3.13$
2.	Average Need-ach.	188	137.11	16.68		$t_{2-3} = 0.82$
3.	High Need-ach.	102	139.03	20.12		$t_{1-3} = 3.25$

\*Significant at .05 level = 3.02

\*Significatn at .01 level = 4.66

Table No.29 reveals that mean score of creativity (including five areas) on low need-achievement is 130.2 and S.D. is 19.39, on average need-achievement level is 137.11 and S.D. is 16.68 and on high need-achievement level is 139.03 and S.D. is 20.12. The 'F' ratio for the three levels was obtained 7.16 not significant at .01 level. It means that creativity is influenced by need-achievement. Verification of these results was also done by 't' test computed among three levels of need-achievement. 't' value on total creativity between low- average and low-high levels were obtained  $t_{1-2} = 3.13$  and  $t_{1-3} = 3.25$  significant at .01 level. While these is no significant difference between average-high need-achievement level of creativity score.



Bar-diagram No.18- showing mean value of total creative power belonging to three levels of need-achievement

**PART - B :**

In this section the interaction effect of all the three variables i.e. self-concept, adjustment and need-achievement upon creativity have been studied. Thus this action consist of three sub-parts as follows:

$B_1$  = Interaction effect of adjustment and self-concept upon creativity.

$B_2$  = Interaction effect of adjustment and need-achievement upon creativity.

$B_3$  = Interaction effect of self-concept and need-achievement upon creativity.

**$B_1$  - INTERACTION EFFECT OF ADJUSTMENT AND SELF-CONCEPT UPON CREATIVITY :**

In order to know whether adjustment and self-concept have any impact upon creativity 2x2 factorial design has been used. The sample has been divided in two adjustment categories i.e. high and low and two self-concept categories i.e. high and low on the basis of Q3 and Q1 values. In this way four groups have been obtained.

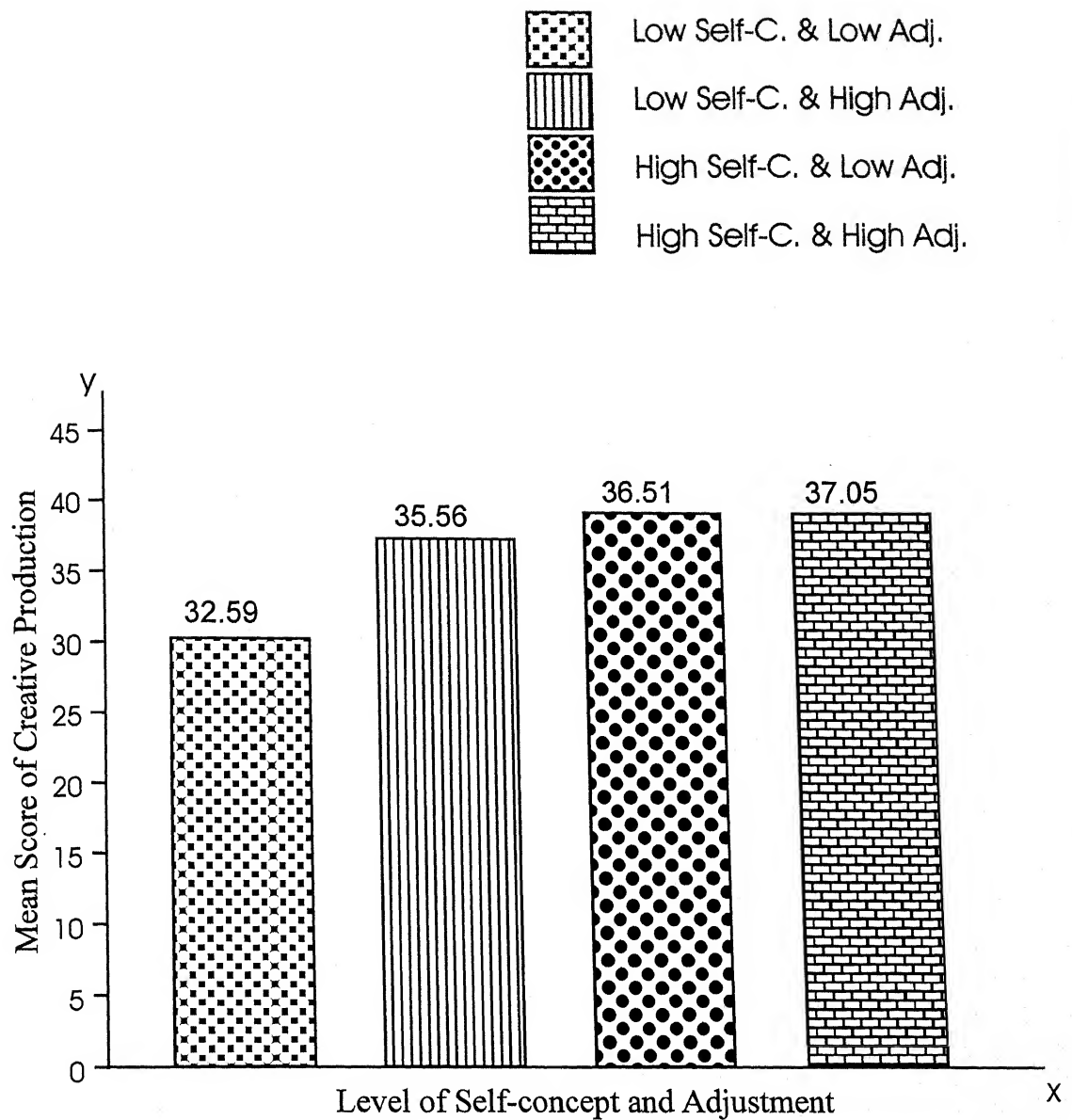
- (1) Low adjustment and low self-concept group ( $N_1 = 41$ )
- (2) Low self-concept and high adjustment group ( $N_2 = 18$ )
- (3) High self-concept and low adjustment group ( $N_3 = 37$ )
- (4) High self-concept and high adjustment group ( $N_4 = 18$ )

Thus researcher has emphasised the effect of adjustment (low/high) and self-concept (low/high) upon creativity as well as interaction effect of both variables upon creativity

Table No.30. : Mean and S.D., values of creative production related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	32.59	35.56	33.50
	S.D.	10.42	6.48	9.49
High	N	37	18	55
	Mean	36.51	37.05	36.69
	S.D.	13.50	7.41	11.86
Total	N	78	36	114
	Mean	34.45	36.31	35.04
	S.D.	12.14	7.00	10.82

It may be observed from table No. 30 that subject of high self-concept have more creative production power (Mean = 36.69) than those of the low self-concept (Mean= 33.50). Subjects of high adjustment have more creative production power (Mean=36.31) in comparison of low adjustment (Mean=34.45). Low adjustment and low self-concept subjects have least creative production power (Mean=32.59) while subjects of high adjustment and high self-concept have highest level of creative production power (Mean=37.50).



Bar-diagram No.19- Showing mean value of creative production related to self-concept (low/high) and adjustment (low/high) levels.



To find out the effect of self-concept (low/high level) and adjustment (low-high level) on creative production. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.31.

Table No.31 - 'F' ratio showing the effect of self-concept and adjustment on creative production.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	178.90	1	178.90	1.52 P> .05
SSb (Adj.)	76.07	1	76.07	0.65 P> .05
SSab (Interaction)	35.83	1	35.83	0.31 P> .05
SS within Cell	12944.57	110	117.68	

F-ratio = 0.05 level = 3.94

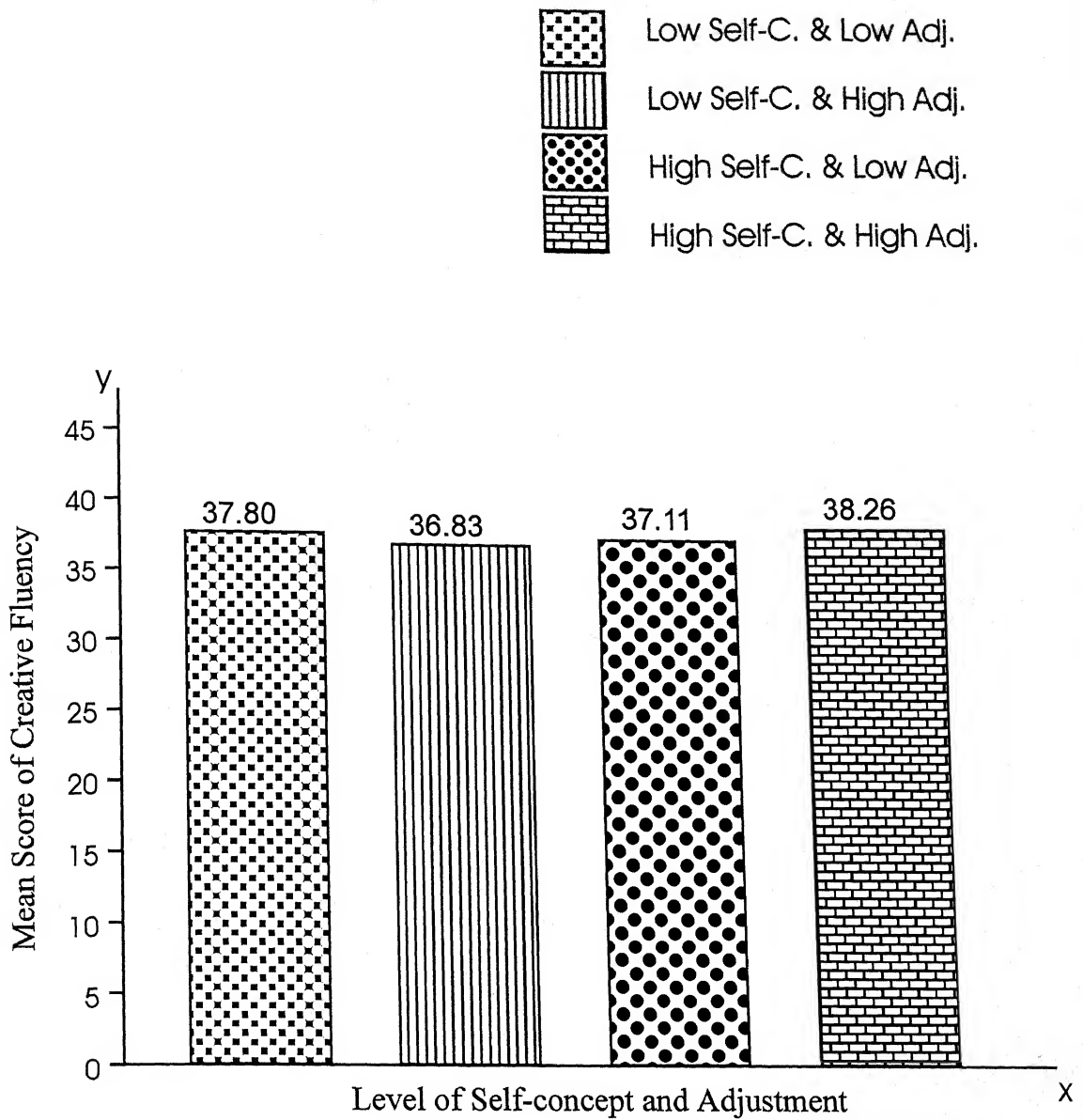
0.01 level = 6.90

F-ratio shows the effect of self-concept (low/high level) and adjustment (low/high level) on creative production. It is evident from Table No.31 that self-concept does not affect significantly creative production at 0.05 level ( $F = 1.52$ ). In the same way adjustment also does not affect significantly creative production at 0.05 level ( $F = 0.65$ ). The interaction effect of self-concept and adjustment do not affect significantly creative production at 0.05 level ( $F = 0.031$ ).

Table No.32. : Mean and S.D., values of creative fluency related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	37.80	36.83	37.50
	S.D.	8.60	5.99	7.91
High	N	37	18	55
	Mean	37.11	39.72	37.96
	S.D.	11.83	10.56	11.50
Total	N	78	36	114
	Mean	37.47	38.26	37.72
	S.D.	10.28	8.71	9.81

It may be observed from table No. 32 there is no sharp difference between high and low self-concept subjects with regards to creative fluency because high self-concept mean is 37.96 and low self-concept mean is 37.50. Subjects of high adjustment have more creative fluency power (Mean is 38.26) in comparison of low adjustment (Mean is 37.47). Subject of high adjustment and high self-concept have highest level of creative fluency ( $M = 39.72$ )



Bar-diagram No.20- Showing mean value of creative fluency related to self-concept (low/high) and adjustment (low/high) levels.

To find out the effect of self-concept (low/high level) and adjustment (low/high level) on creative fluency. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.33.

Table No.33 - 'F' ratio showing the effect of self-concept and adjustment on creative fluency.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	29.94	1	29.94	0.30 $P > .05$
SSb (Adj.)	16.69	1	16.69	0.17 $P > .05$
SSab (Interaction)	78.28	1	78.28	0.79 $P > .05$
SS within Cell	10868.12	110	98.80	

F-ratio = 0.05 level = 3.94

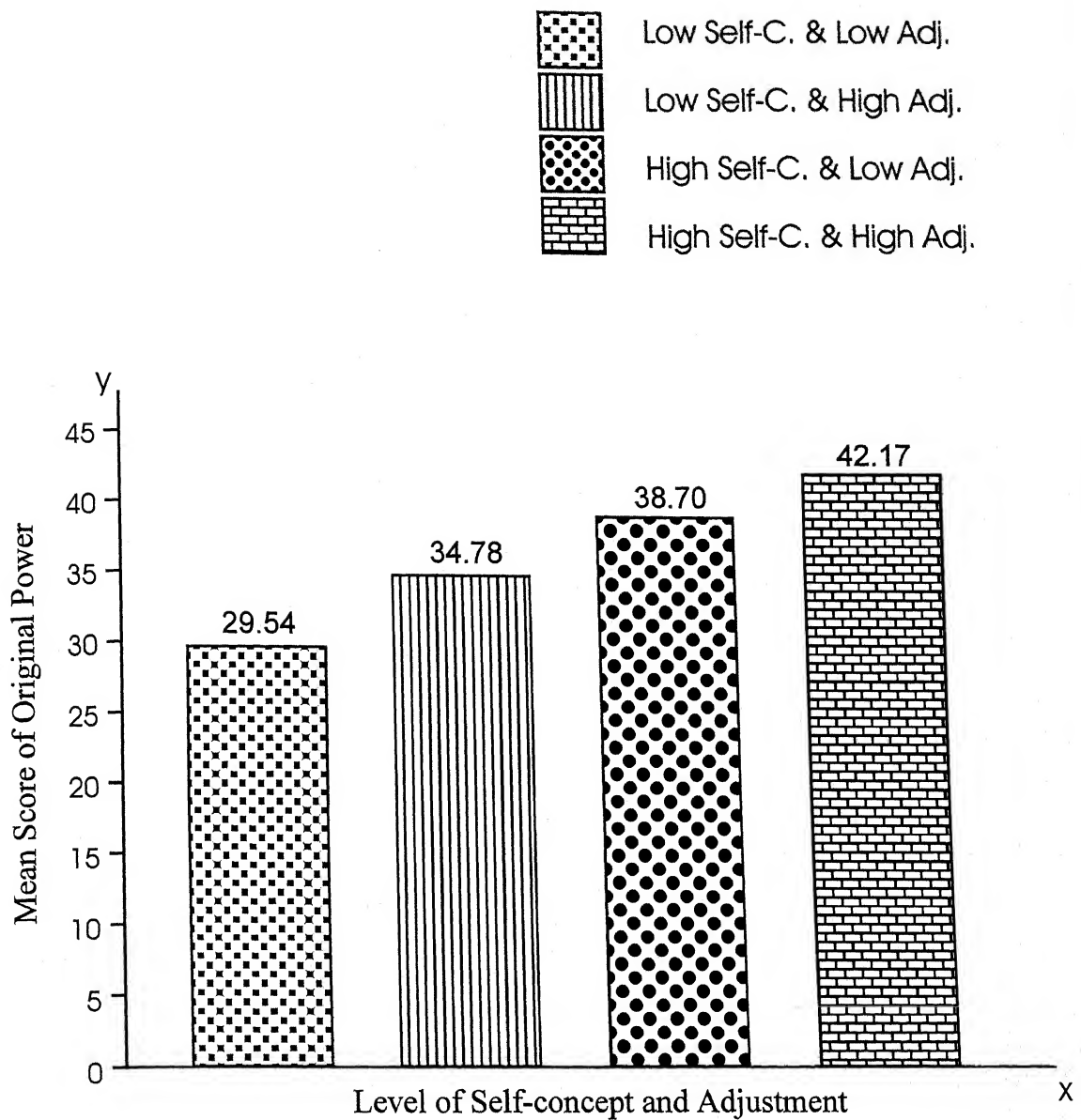
.01 level = 6.90

F-ratio shows the effect of self-concept (low/high level) and adjustment (low/high level) on creative fluency. It is evident from Table No.33 that self-concept does not affect significantly creative fluency at 0.05 level ( $F = 0.30$ ). In the same way adjustment also does not affect significantly creative fluency at .05 level ( $F = 0.17$ ). The interaction effect of self-concept and adjustment do not affect significantly creative fluency at 0.05 level ( $F = 0.79$ ).

Table No.34. Mean and S.D., values of Original power of creativity related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	29.54	34.78	31.14
	S.D.	11.34	8.66	10.87
High	N	37	18	55
	Mean	38.70	42.17	39.83
	S.D.	9.69	9.62	9.80
Total	N	78	36	114
	Mean	33.89	38.48	35.33
	S.D.	11.54	9.15	11.24

It may be observed from table No. 34 that subject of high self-concept have more Original power of creativity (Mean = 39.83) than those of the low self-concept (Mean = 31.14). Subjects of high adjustment have more Original power (Mean = 38.48) in comparison of low adjustment (Mean = 33.89). Low adjustment and low self-concept subject have least Original power (Mean = 29.54) while subjects of high adjustment and high self-concept have highest level of Original power of creativity (Mean = 42.17)



Bar-diagram No.21- Showing mean value of original power related to self-concept (low/high) and adjustment (low/high) levels.

To find out the effect of self-concept (low/high level) and adjustment (low/high level) on Original power of creativity. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.35.

Table No.35 - 'F' ratio showing the effect of self-concept and adjustment on Original power of creativity.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	1680.50	1	1680.50	15.71 P< .01
SSb (Adj.)	465.52	1	465.52	4.35 P< .05
SSab (Interaction)	19.14	1	19.14	0.18 P> .05
SS within Cell	11765.54	110	106.96	

F-ratio = 0.05 level = 3.94

0.01 level = 6.90

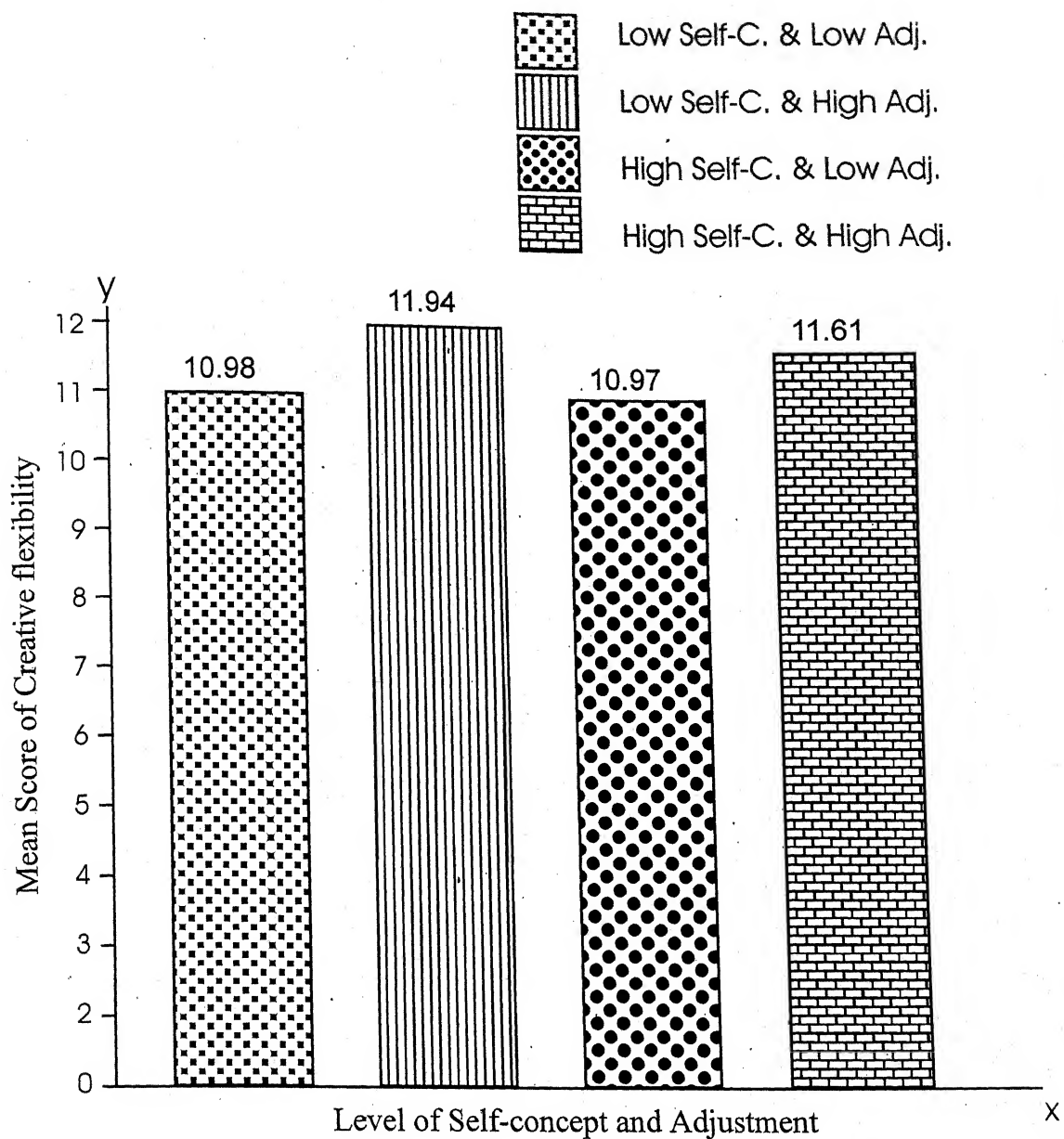
F-ratio reveals the effect of self-concept (low/high level) and adjustment (low/high level) on Original power of creativity. It is evident from Table No.35 that self-concept affect significantly Original power of creativity at 0.01 level (F= 15.71). In the same way adjustment also affects significantly at .05 level (F= 4.35). But the interaction effect of self-concept and adjustment do not affect significantly Original power of creativity at 0.05 level (F= 0.18).

Table No.36. : Mean and S.D. of creative flexibility related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	10.98	11.94	11.27
	S.D.	4.38	2.44	3.92
High	N	37	18	55
	Mean	10.97	11.61	11.18
	S.D.	2.81	4.38	3.42
Total	N	78	36	114
	Mean	10.98	11.78	11.23
	S.D.	3.38	3.55	3.69

It may be observed from table No. 36 that there is no sharp difference between the subject of high and low self-concept mean is 11.18 and low self-concept (Mean = 11.27). But the subject of high adjustment have more creative flexibility (Mean = 11.78) in comparison of low adjustment (Mean = 10.98). Subject of high adjustment and low self-concept have highest level of creative flexibility (Mean = 11.94)





Bar-diagram No.22- Showing mean value of creative flexibility related to self-concept (low/high) and adjustment (low/high) levels.

To find out the effect of self-concept (low/high level) and adjustment (low/high level) on creative flexibility. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.37.

Table No.37 - 'F' ratio showing the effect of self-concept and adjustment on creative flexibility.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	0.736	1	0.736	0.05 P> .05
SSb (Adj.)	15.71	1	15.71	1.14 P> .05
SSab (Interaction)	0.49	1	0.49	0.04 P> .05
SS within Cell	1513.15	110	13.76	

F-ratio = 0.05 level = 3.94

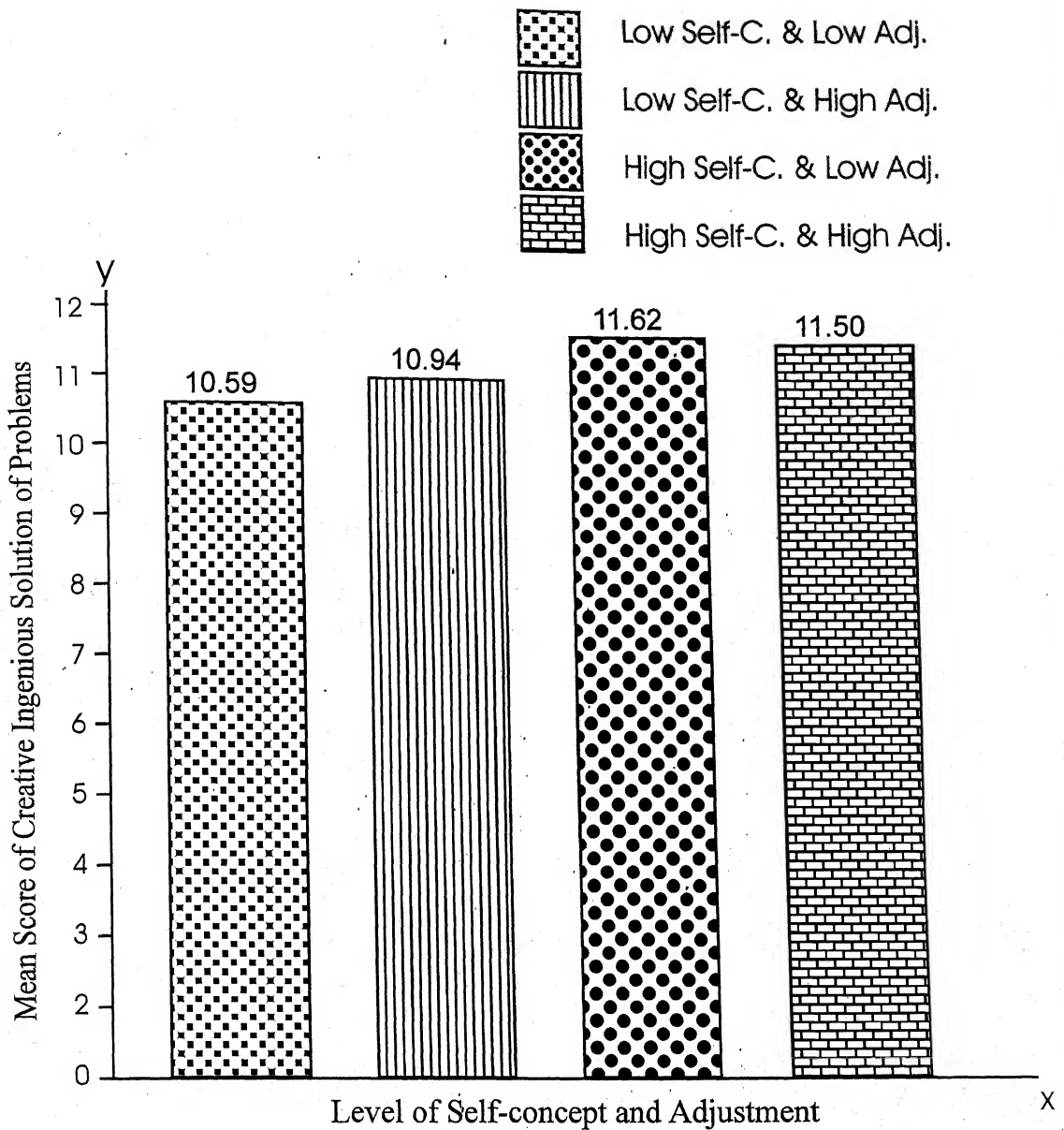
0.01 level = 6.90

F-ratio shows the effect of self-concept (low/high level) and adjustment (low/high level) on creative flexibility. It is evident from Table No.37 that self-concept does not affect significantly creative flexibility at 0.05 level ( $F = 0.05$ ). In the same way adjustment also does not affect significantly creative flexibility at .05 level ( $F = 1.14$ ). The interaction effect of self-concept and adjustment do not affect significantly creative flexibility at 0.05 level ( $F = 0.04$ ).

Table No.38. : Mean and S.D. value of creative ingenious solution of problem related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	10.59	10.94	10.70
	S.D.	4.20	3.44	3.99
High	N	37	18	55
	Mean	11.62	11.50	11.58
	S.D.	3.86	3.24	3.67
Total	N	78	36	114
	Mean	11.08	11.22	11.12
	S.D.	4.07	3.35	3.86

It may be observed from table No. 38 that subjects of high self-concept have more creative ingenious solution of problems power (Mean = 11.58) than subjects of the low self-concept (Mean = 10.70). But there is no sharp difference with regards to creative ingenious solution of problem between high self-concept subjects (Mean = 11.22) and low self-concept subjects (Mean = 11.08). Low adjustment and low self-concept subjects have least creative ingenious solution of problem power (Mean = 10.59).



Bar-diagram No.23- Showing mean value of creative ingenious solution of problems related to self-concept (low/high) and adjustment (low/high) levels.

To find out the effect of self-concept (low/high level) and adjustment (low/high level) on creative ingenious solution of problem. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.39.

Table No.39 - 'F' ratio showing the effect of self-concept and adjustment on creative ingenious solution of problem.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	15.46	1	15.46	1.01 P> .05
SSb (Adj.)	0.25	1	0.25	0.02 P> .05
SSab (Interaction)	1.23	1	1.23	0.08 P> .05
SS within Cell	1676.09	110	15.24	

F-ratio = 0.05 level = 3.94

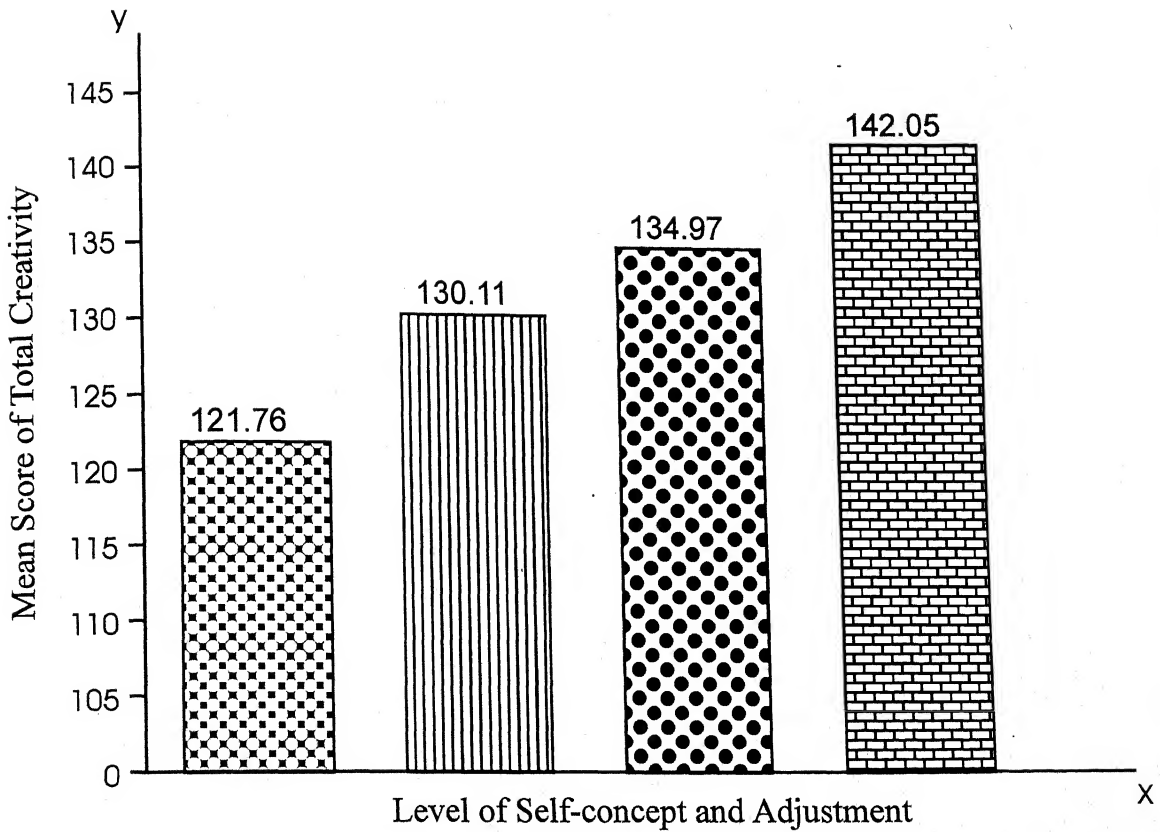
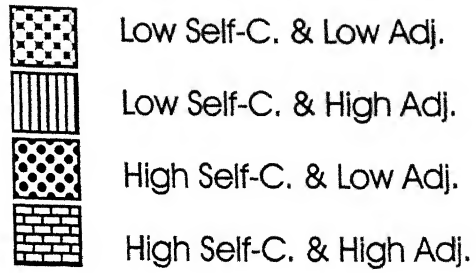
0.01 level = 6.90

F-ratio shows the effect of self-concept (low/high level) and adjustment (low/high level) on creative ingenious solution of problem. It is evident from Table No.39 that self-concept does not affect significantly creative ingenious solution of problem at 0.05 level ( $F=1.01$ ). In the same way adjustment also does not affects significantly creative ingenious solution of problem at .05 level ( $F=0.02$ ). The interaction effect of self-concept and adjustment do not affect significantly creative ingenious solution of problem at 0.05 level ( $F=0.08$ ).

Table No.40. : Mean and S.D. value of total creativity related to adjustment (low and high level) and self-concept (low and high level).

Adjustment Self-concept		Low	High	Total
Low	N	41	18	59
	Mean	121.76	130.11	124.31
	S.D.	22.77	9.85	20.12
High	N	37	18	55
	Mean	134.97	142.05	137.29
	S.D.	26.84	12.39	23.36
Total	N	78	36	114
	Mean	128.03	136.08	130.57
	S.D.	25.65	12.68	22.69

It may be observed from table No. 40 that subjects of high self-concept have more creative power (Mean = 137.29) than subjects of the low self-concept (Mean = 124.31). subjects of high adjustment have more creative power (M= 136.08) in comparison of low adjustment (M= 128.03). Low adjustment and low self-concept subject have least creative power (M= 121.76) while subject of high adjustment and high self-concept have highest level of creative power (M= 142.05).



Bar-diagram No.24- Showing mean value of total creative power related to self-concept (low/high) and adjustment (low/high) levels.

To find out the effect of self-concept (low/high level) and adjustment (low/high level) on creative power. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.41.

Table No.41 - 'F' ratio showing the effect of self-concept and adjustment on total creative power.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Self-C.)	3880.51	1	3880.51	9.10 P< .01
SSb (Adj.)	1460.62	1	1460.62	3.43 P> .05
SSab (Interaction)	9.82	1	9.82	0.02 P> .05
SS within Cell	46889.37	110	426.27	

F-ratio = 0.05 level = 3.94  
0.01 level = 6.90

F-ratio shows the effect of self-concept (low/high level) and adjustment (low/high level) on total creative power. It is evident from Table No.41 that self-concept affects significantly total creativity at .01 level (F= 9.10). But adjustment does not affect significantly total creativity at .05 level (F= 3.43). The interaction effect of self-concept and adjustment do not affect significantly total creativity at .05 level (F= 0.02).



## **B<sub>2</sub> - INTERACTION EFFECT OF ADJUSTMENT AND NEED-ACHIEVEMENT UPON CREATIVITY :**

In order to know whether adjustment and need-achievement have any impact upon creativity 2x2 factorial design has been used. The sample is divided into two adjustment categories i.e. high and low and two need-achievement categories i.e. low/high on the basis of  $Q_3$  and  $Q_1$  values. Thus four groups have been obtained.

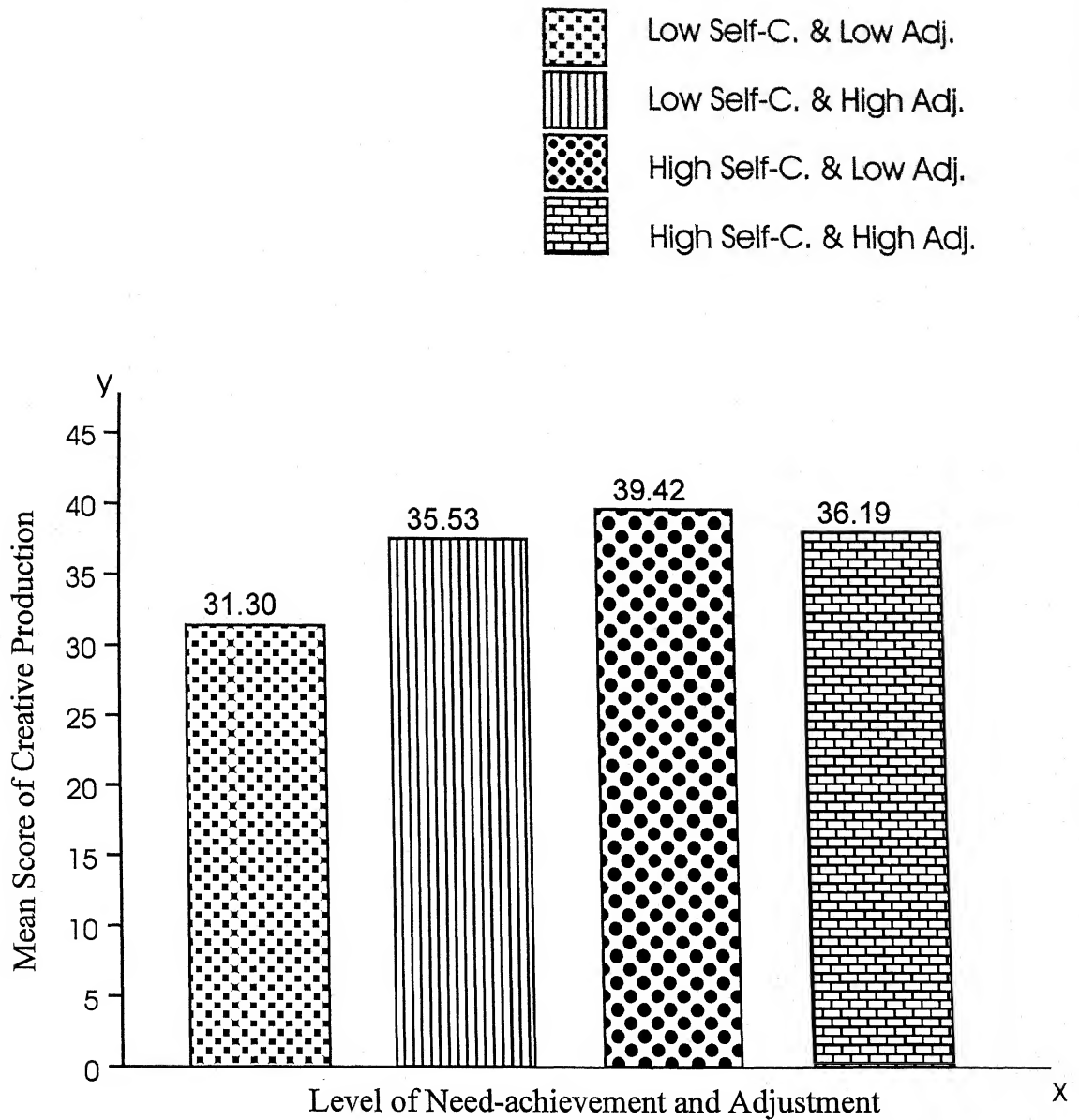
- (1) Low adjustment and low need-achievement ( $N_1 = 40$ )
- (2) Low need-achievement and high adjustment ( $N_2 = 19$ )
- (3) High need-achievement and low adjustment ( $N_3 = 36$ )
- (4) High need-achievement and high adjustment ( $N_4 = 27$ )

Thus researcher has emphasised the effect of adjustment (low/high) and need-achievement (low/high) upon creativity as well as interaction effect of both variables upon creativity.

Table No.42. : Mean and S.D. values of creative production related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	31.3	35.53	32.66
	S.D.	10.98	5.96	9.85
High	N	36	27	63
	Mean	39.42	36.19	38.04
	S.D.	10.95	7.77	9.85
Total	N	76	46	122
	Mean	35.15	35.92	35.44
	S.D.	11.69	7.09	10.21

It may be observed from table No. 42 that subject of high need-achievement have more creative production power (Mean = 38.04) than the subjects of low need-achievement (Mean= 32.66). But there is no sharp difference between the subjects of high adjustment (Mean= 35.92) and subjects of low adjustment (Mean= 35.15). Low need-achievement and low adjustment subjects have least creative production power (Mean= 31.3).



Bar-diagram No.25- Showing mean value of creative production related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on creative production. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.43.

Table No.43 - 'F' ratio showing the effect of need-achievement and adjustment on creative production.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	538.98	1	538.98	5.56 P< .05
SSb (Adj.)	6.99	1	6.99	0.07 P> .05
SSab (Interaction)	389.34	1	389.34	4.01 P< .05
SS within Cell	11447.96	118	97.02	

F-ratio = 0.05 level = 3.95

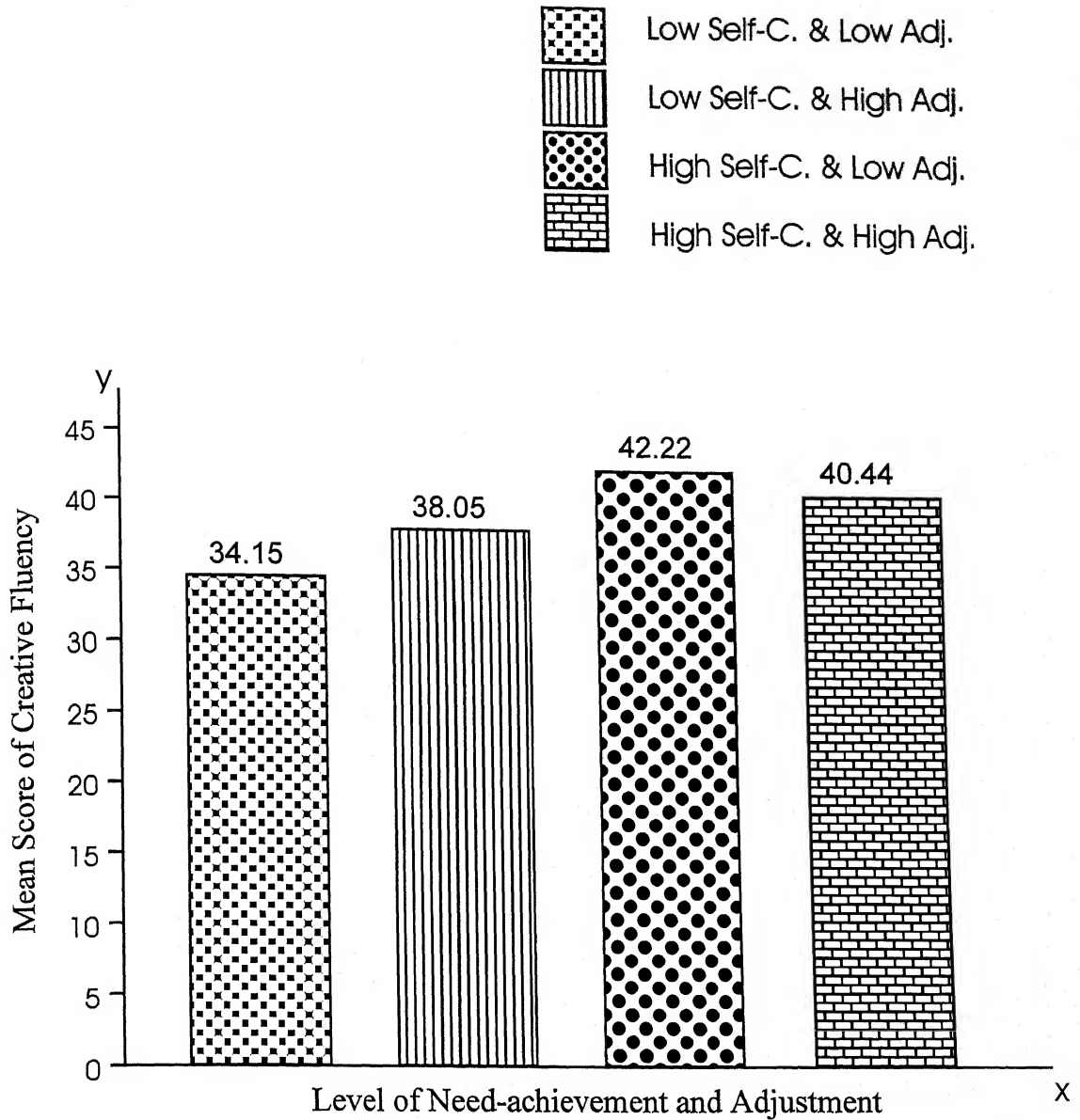
0.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and adjustment (low and high level) on creative production. It is evident from Table No.43 that need-achievement affects significantly creative production at 0.05 level (F= 5.56) but adjustment does not affect significantly creative production at 0.05 level (F= 0.07). The interaction effect of need-achievement and adjustment affects significantly creative production at 0.05 level (F= 4.01).

Table No.44. : Mean and S.D. values of creative fluency related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	34.15	38.05	35.41
	S.D.	9.85	7.80	9.41
High	N	36	27	63
	Mean	42.22	40.44	41.46
	S.D.	8.04	9.57	8.77
Total	N	76	46	122
	Mean	37.97	39.45	38.53
	S.D.	9.90	8.96	6.89

It may be observed from table No. 44 that subject of high need-achievement have more creative fluency (Mean = 41.46) than the subject of low need-achievement (Mean= 35.41). In the same way subjects of high adjustment have more creative fluency (Mean= 39.45) in comparison of low adjusted subjects (Mean= 37.97). Subjects of low adjustment and low need-achievement subjects have least creative fluency (Mean= 34.15).



Bar-diagram No.26- Showing mean value of creative fluency related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on creative fluency. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.45.

Table No.45 - 'F' ratio showing the effect of need-achievement and adjustment on creative fluency.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	765.26	1	765.26	18.44 P< .01
SSb (Adj.)	31.61	1	31.61	0.08 P> .05
SSab (Interaction)	225.16	1	225.16	5.43 P< .05
SS within Cell	4895.60	118	41.49	

F-ratio = 0.05 level = 3.95

0.01 level = 6.90

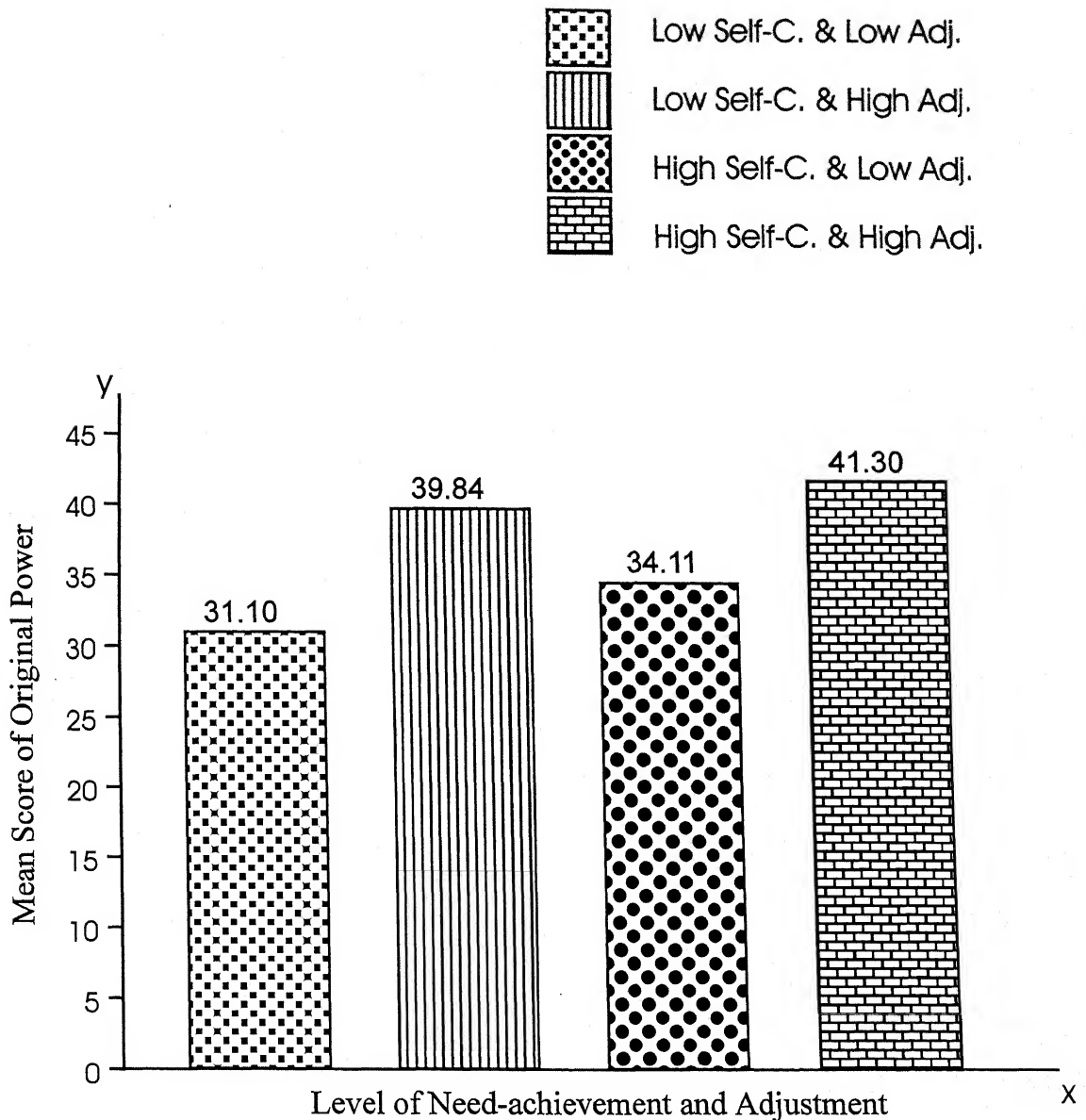
F-ratio shows the effect of need-achievement (low/high level) and adjustment (low and high level) on creative fluency. It is evident from Table No.45 that need-achievement affects significantly creative fluency at 0.01 level ( $F = 18.44$ ) but adjustment does not affect significantly creative fluency at 0.05 level ( $F = 0.08$ ). The interaction effect of need-achievement and adjustment affects significantly creative fluency at 0.05 level ( $F = 5.43$ ).

Table No.46. : Mean and S.D. values of Original power of creativity related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	32.10	39.84	34.59
	S.D.	12.14	6.66	11.28
High	N	36	27	63
	Mean	34.11	41.30	37.19
	S.D.	10.29	7.76	9.95
Total	N	76	46	122
	Mean	33.05	40.70	35.93
	S.D.	11.35	7.36	10.69

It may be observed from table No. 46 that subject of high need-achievement have more Original power of creativity (Mean = 37.19) than the subjects of low need-achievement (Mean= 34.59). Subjects of high adjustment have more Original power of creativity (Mean= 40.70) in comparison of low adjusted subjects (Mean= 33.05). Low adjustment and low need-achievement subjects have least Original power of creativity (Mean= 32.1) while subjects of high adjustment and high need-achievement have highest level of original power of creativity (Mean= 41.30)





Bar-diagram No.27- Showing mean value of original power related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on original power of creativity. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.47.

Table No.47 - 'F' ratio showing the effect of need-achievement and adjustment on original power of creativity:

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	83.91	1	83.91	0.75 $P > .05$
SSb (Adj.)	1558.49	1	1558.49	13.94 $P < .01$
SSab (Interaction)	0.09	1	0.09	.0008 $P > .05$
SS within Cell	13189.32	118	111.77	

F-ratio = 0.05 level = 3.94

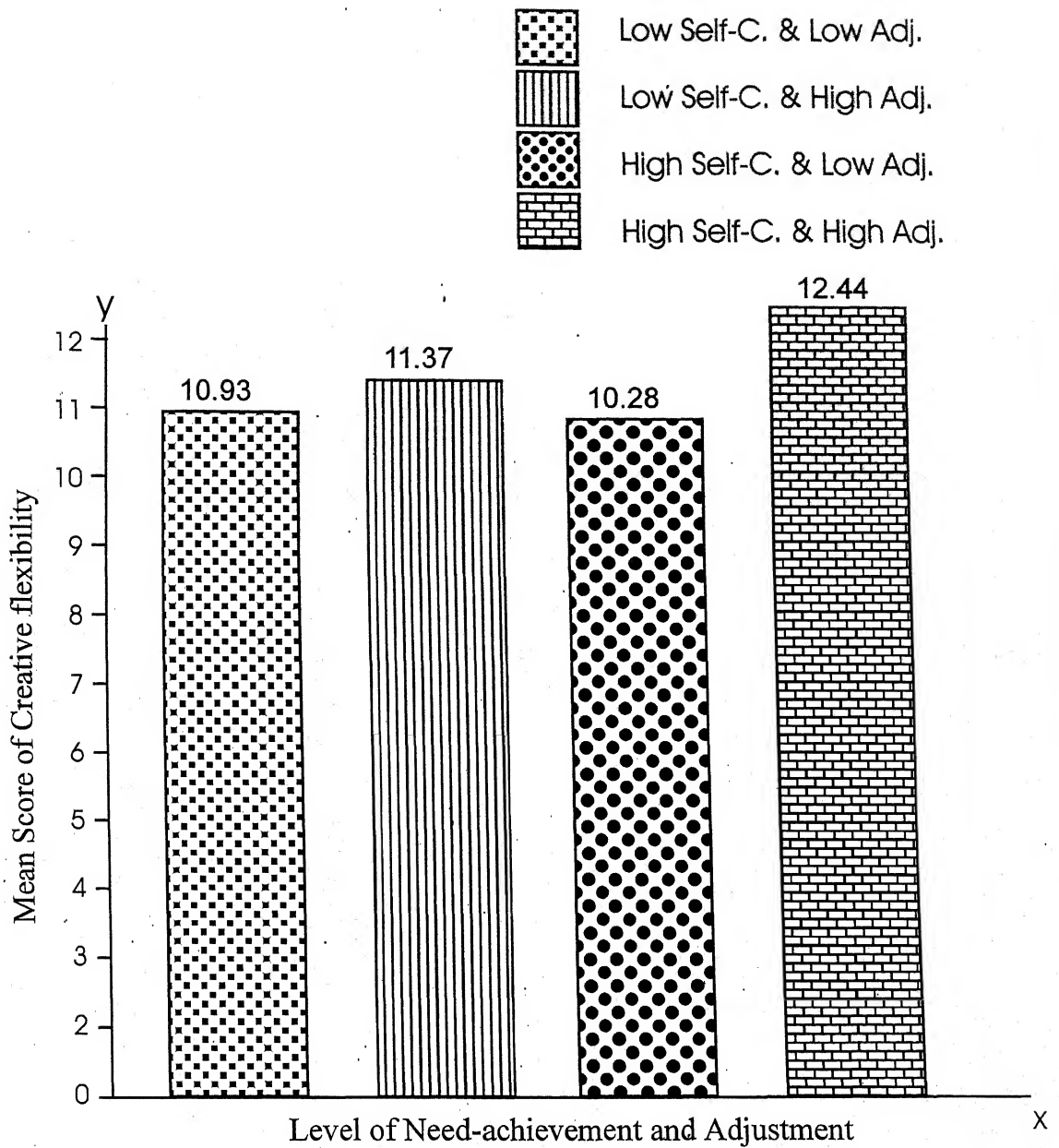
0.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and adjustment (low and high level) on original power of creativity. It is evident from Table No.47 that need-achievement does not affect significantly original power of creativity at 0.05 level ( $F = 0.75$ ). But adjustment affects significant original power of creativity at .01 level ( $F = 13.94$ ). The interaction effect of need-achievement and adjustment do not affect significantly original power of creativity at .05 level ( $F = .0008$ ).

Table No.48. : Mean and S.D. values of creative flexibility related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	10.93	11.37	11.07
	S.D.	3.89	3.56	3.79
High	N	36	27	63
	Mean	10.28	12.44	11.21
	S.D.	3.52	2.42	3.28
Total	N	76	46	122
	Mean	10.62	11.99	11.14
	S.D.	3.73	2.99	3.55

It may be observed from table No. 48 there is no sharp difference between the subjects high need-achievement subjects (Mean = 11.21) and subjects of low need achievement subjects (Mean= 11.07) but subjects of high adjustment have more creative flexibility (Mean= 11.99) in comparison of the subjects of low adjustment (Mean= 10.62). Low adjustment and low need-achievement subject have low level of creative flexibility (Mean= 10.93) while subjects of high adjustment and high need-achievement have highest level of creative flexibilitiy power (mean= 12.44)



Bar-diagram No.28- Showing mean value of creative flexibility related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on creative flexibility. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in table N= 49.

Table No.49 - 'F' ratio showing the effect of need-achievement and adjustment on creative flexibility.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	11.19	1	11.91	0.91 P> .05
SSb (Adj.)	47.27	1	47.27	3.84 P> .05
SSab (Interaction)	20.70	1	20.70	1.68 P> .05
SS within Cell	1453.09	118	12.31	

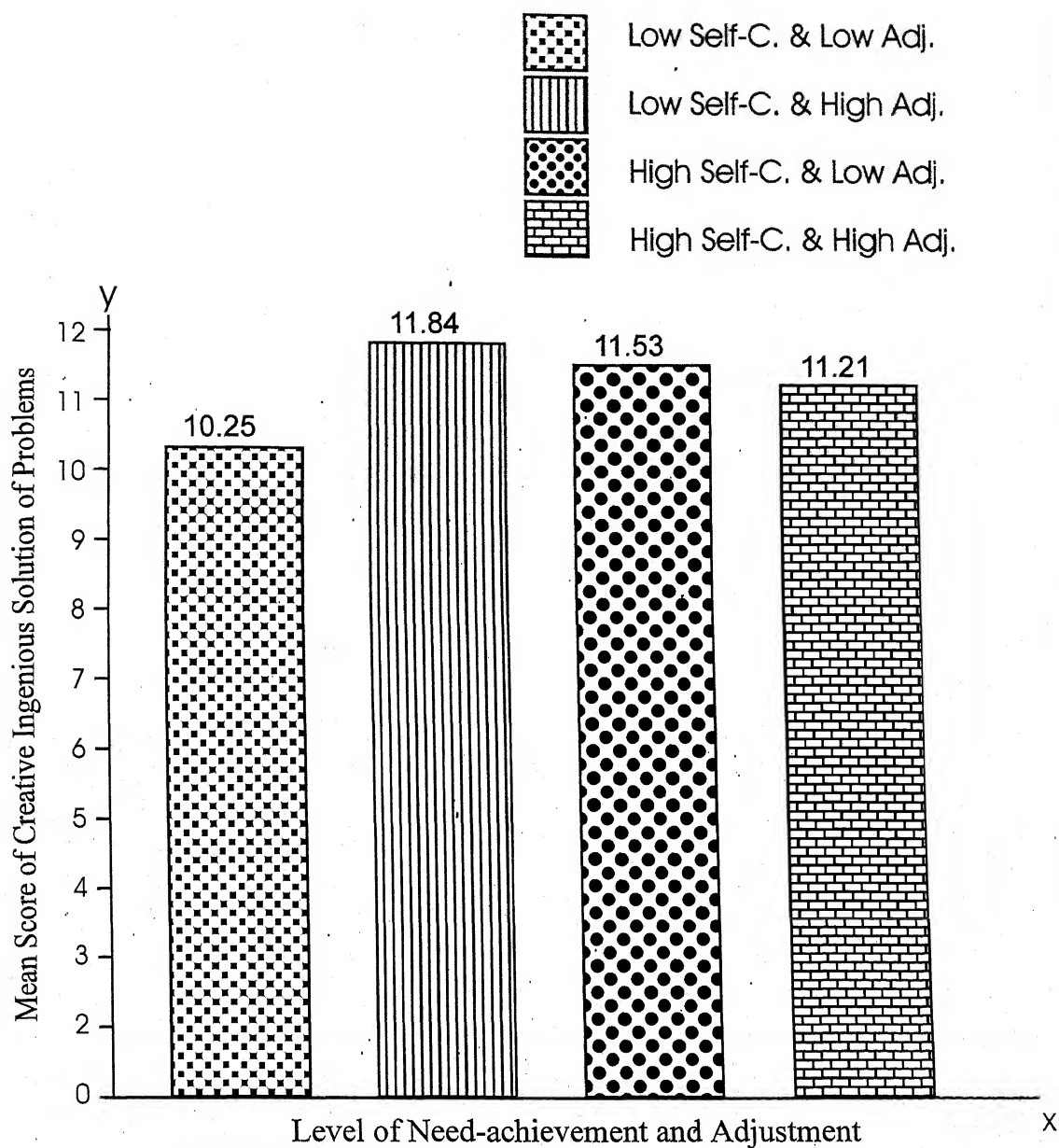
F-ratio = 0.05 level = 3.94  
0.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and adjustment (low/high level) on creative flexibility. It is evident from table No. 49 that need-achievement does not effect significantly creative flexibility at .05 level (F= 0.91). In the same way adjustment also does not affect significantly creative flexibility at ,05 level (F= 3.84). The interaction effect of need-achievement and adjustment do not affect significantly creative flexibility at 0.05 level (F= 1.68)

Table No.50. : Mean and S.D. values of creative ingenious solution of problems related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	10.25	11.84	10.76
	S.D.	4.33	3.70	4.20
High	N	36	27	63
	Mean	11.53	11.21	11.39
	S.D.	3.69	3.38	3.56
Total	N	76	46	122
	Mean	10.86	11.47	11.09
	S.D.	3.17	3.53	3.89

It may be observed from table No. 50 that the subjects of high need-achievement have more creative ingenious solution of problems (Mean= 11.39) than those of the low need-achievement (Mean= 10.76). Subjects of high adjustment have more creative ingenious solution of problems (mean= 11.47) in comparison of the subjects of low adjustment (Mean= 10.86) low need-achievement and low adjustment subjects have least creative ingenious solution of problems (Mean= 10.25)



Bar-diagram No.29- Showing mean value of creative ingenious solution of problems related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on creative ingenious solution of problems. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in table N= 51.

Table No.51 - 'F' ratio showing the effect of need-achievement and adjustment on Creative ingenious solution of problem..

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	16.78	1	16.78	1.09 P> .05
SSb (Adj.)	32.72	1	32.72	2.13 P> .05
SSab (Interaction)	7.27	1	7.27	0.47 P> .05
SS within Cell	1809.62	118	15.34	

F-ratio = .05 level = 3.94

.01 level = 6.90

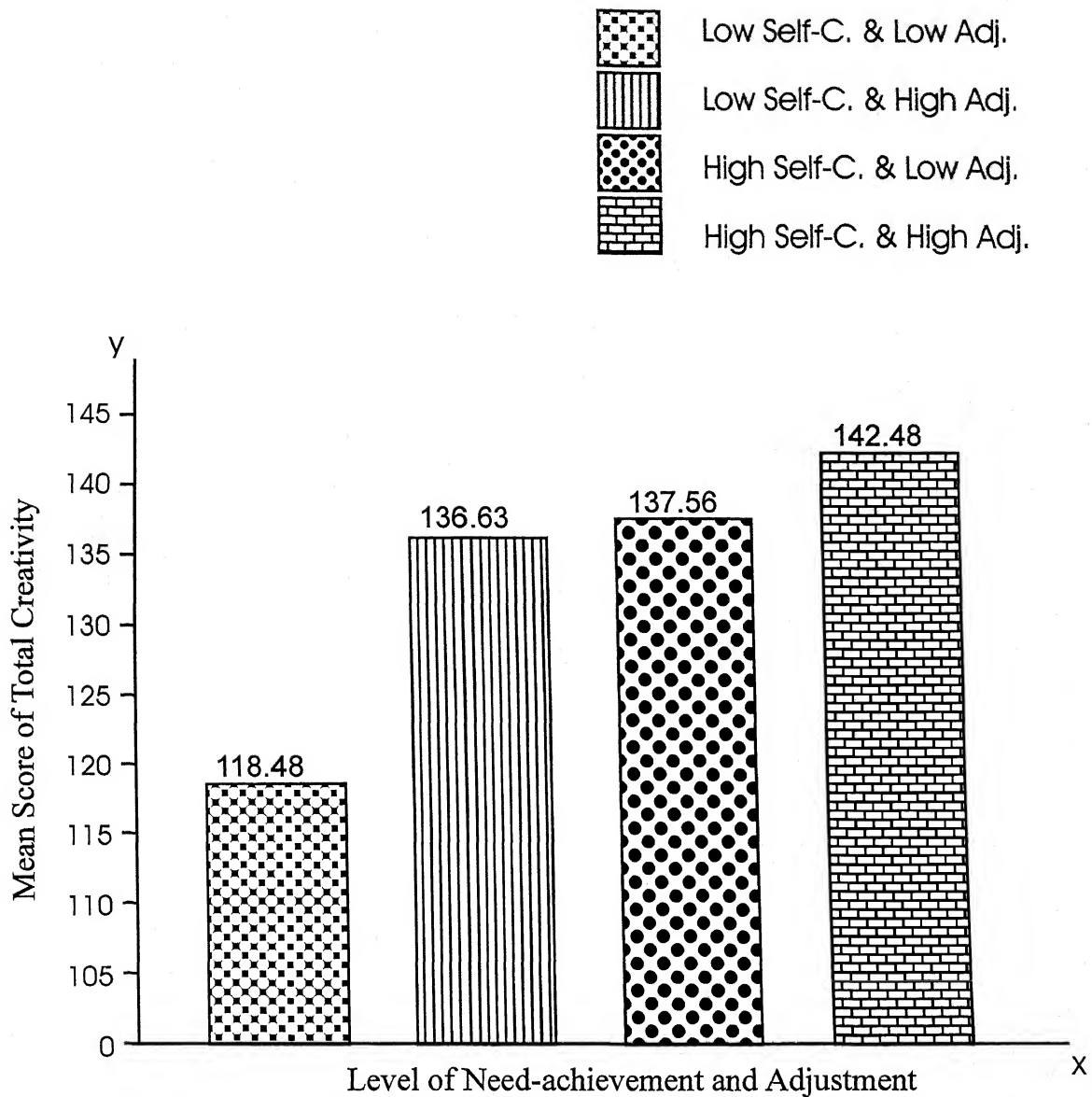
F-ratio shows the effect of need-achievement (low/high level) and adjustment (low/high level) on Creative ingenious solution of problem. It is evident from table No.51 that need-achievement does not affect significant Creative ingenious solution of problem at .05 level (F= 1.09). In the same way adjustment also does not affect significantly Creative ingenious solution of problem. at .05 level (F= 2.13). The interaction effect of need-achievement and adjustment do not affect significantly Creative ingenious solution of problem at .05 level (F= 0.47)



Table No.52. : Mean and S.D. values of total creativity related to adjustment (low/high level) and need-achievement (low/high level).

Adjustment Need-achievement		Low	High	Total
Low	N	40	19	59
	Mean	118.48	136.63	124.32
	S.D.	25.72	14.43	24.24
High	N	36	27	63
	Mean	137.56	142.48	139.67
	S.D.	22.22	16.73	20.20
Total	N	76	46	122
	Mean	127.52	140.06	132.25
	S.D.	25.94	16.08	23.53

It may be observed from table No. 52 that subjects high need-achievement have more creativity (Mean= 139.67) than those of the low need-achievement (Mean= 124.32). Subjects of high adjustment have more creative power (Mean= 140.06) in comparison of the subjects of low adjustment (Mean= 127.52). Low need-achievement and low adjustment subjects have least creative power (Mean= 118.48) while subjects of high adjustment and high need-achievement have highest level of creativity (Mean= 142.48).



Bar-diagram No.30- Showing mean value of total creative power related to need-achievement (low/high) and adjustment (low/high) levels.

To find out the effect of need-achievement (low/high level) and adjustment (low/high level) on total creativity. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in table N= 53.

Table No.53 - 'F' ratio showing the effect of need-achievement and adjustment on total creativity.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	4345.98	1	4345.98	12.62 P< .01
SSb (Adj.)	3721.69	1	3721.69	10.81 P< .01
SSab (Interaction)	1223.69	1	1223.69	3.55 P> .05
SS within Cell	40640.55	118	344.41	

F-ratio = .05 level = 3.94

.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and adjustment (low/high level) on total creative power. It is evident from table No.53 that need-achievement affects significant total creativity at .01 level (F= 12.62). In the same way adjustment also affects significantly total creativity at .01 level (F= 10.81). The interaction effect of need-achievement and adjustment do not affect significantly total creativity at .05 level (F= 3.55)

### **B<sub>3</sub> - INTERACTION EFFECT OF SELF-CONCEPT AND NEED-ACHIEVEMENT UPON CREATIVITY:**

In order to know whether self-concept and need-achievement have any impact upon creativity 2x2 factorial design has been used. The sample is divided into two self-concept categories i.e. high and low and two need-achievement categories i.e. low/high on the basis of  $Q_3$  and  $Q_1$  values. Thus four groups have been obtained.

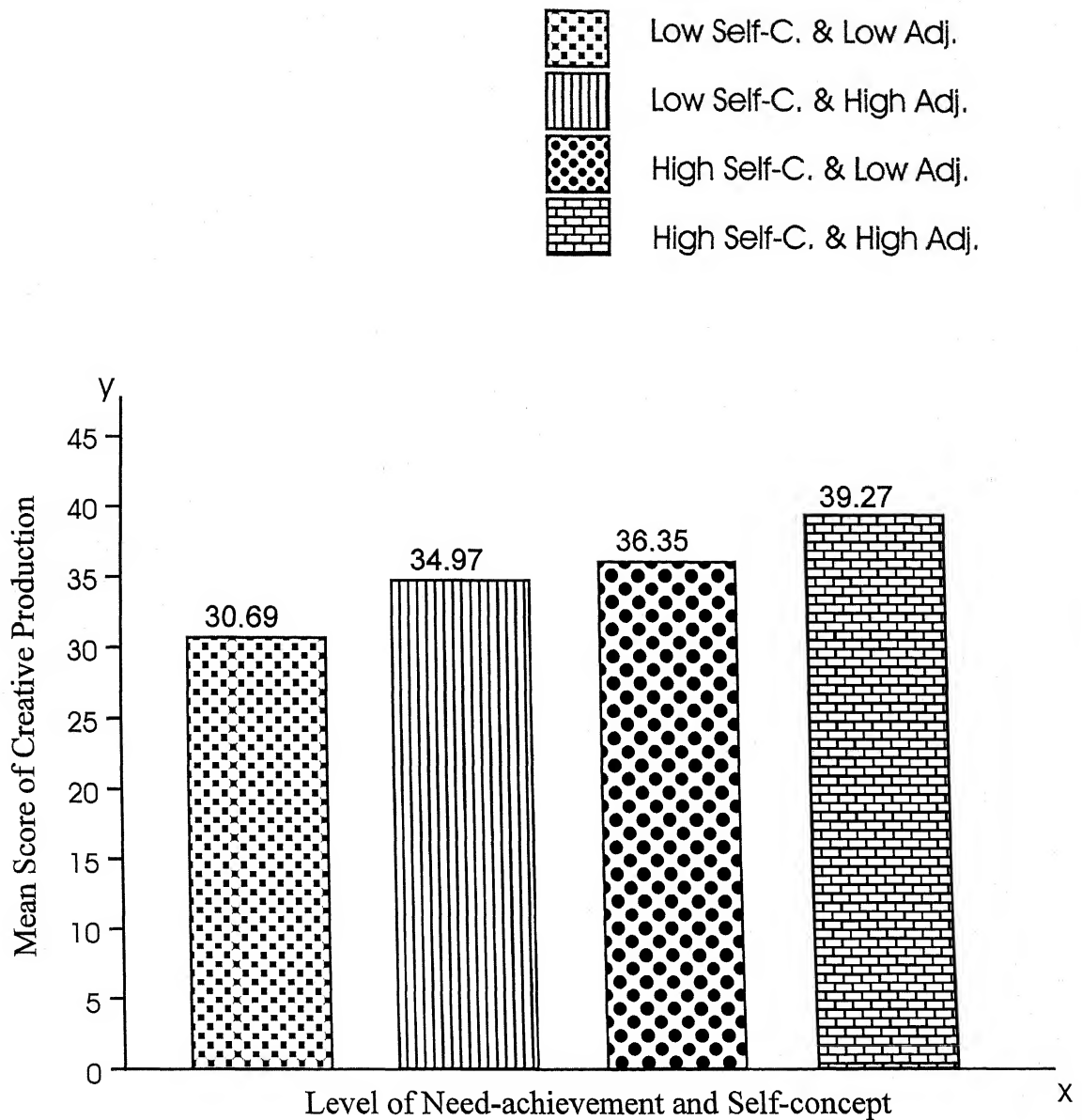
- (1) Low self-concept and low need-achievement ( $N_1 = 26$ )
- (2) Low need-achievement and high self-concept ( $N_2 = 36$ )
- (3) High need-achievement and low self-concept ( $N_3 = 26$ )
- (4) High need-achievement and high self-concept ( $N_4 = 26$ )

Thus researcher has emphasised the effect of self-concept (low/high) and need-achievement (low/high) upon creativity as well as interaction effect of both variables upon creativity.

Table No.54. : Mean and S.D. values of creative production related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	30.69	34.97	33.18
	S.D.	10.11	10.14	10.27
High	N	26	26	52
	Mean	36.35	39.27	37.81
	S.D.	8.56	12.53	10.83
Total	N	52	62	114
	Mean	33.52	36.77	35.29
	S.D.	9.78	11.40	10.78

It may be observed from table No. 54 that subject of high need-achievement have more creative production power (Mean = 37.81) than the subject of low need-achievement (Mean= 33.18). subjects of high self-concept have more creative production power (Mean= 36.77) in comparison of low self-concept (Mean= 33.52). Low need achievement and low self-concept subjects have least creative production power (Mean= 30.69) while subjects of high need-achievement and high self-concept have highest level of creative production power (Mean= 39.27).



Bar-diagram No.31- Showing mean value of creative production related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on creative production. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.55.

Table No.55 - 'F' ratio showing the effect of need-achievement and self-concept on creative production.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	703.58	1	703.58	6.27 P< .05
SSb (Self-C.)	367.68	1	367.68	3.27 P> .05
SSab (Interaction)	13.05	1	13.05	0.12 P>.05
SS within Cell	12343.51	110	112.21	

F-ratio = .05 level = 3.94  
.01 level = 6.90

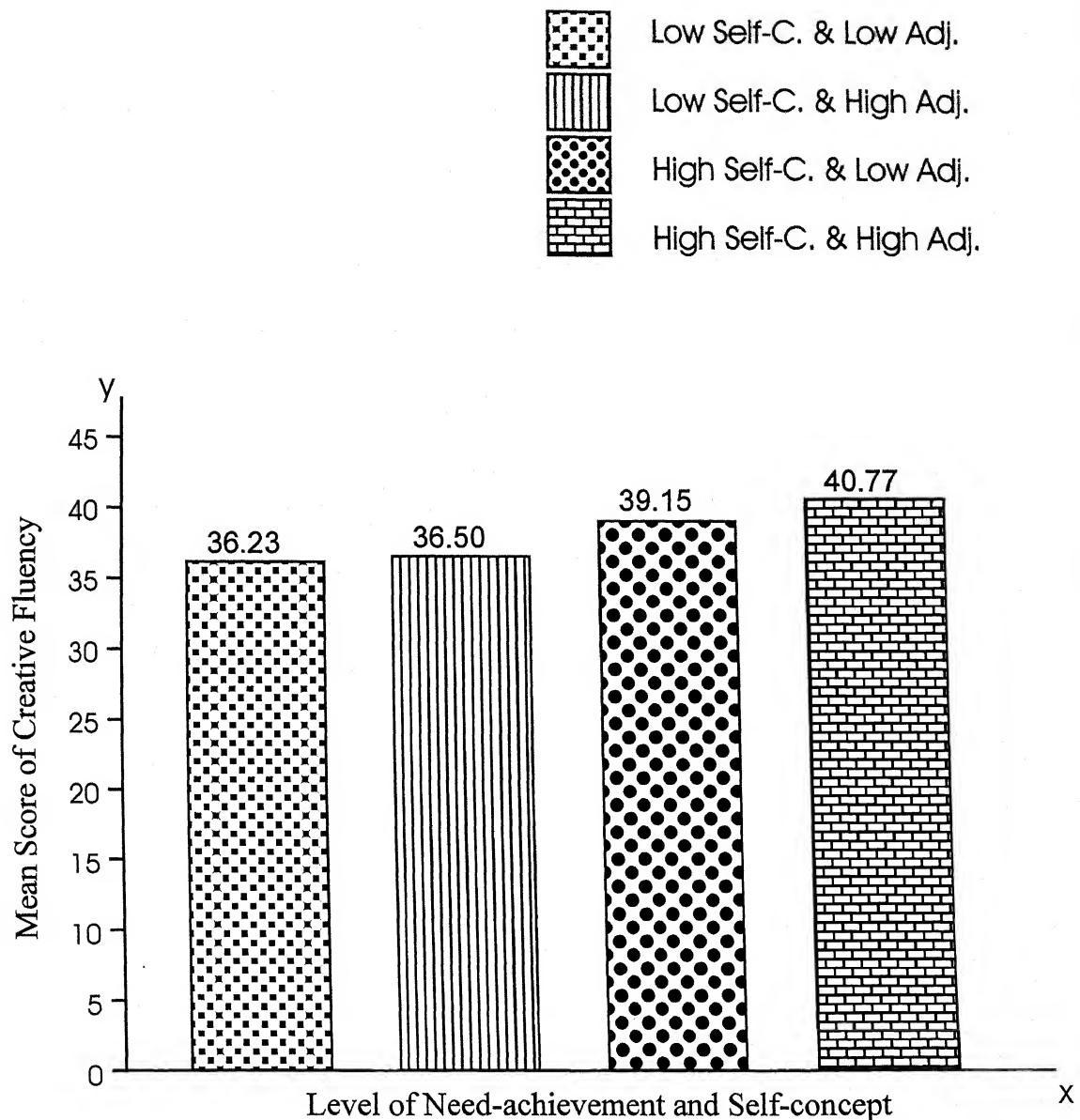
F-ratio shows the effect of need-achievement (low/high level) and self-concept (low and high level) on creative production. It is evident from Table No.55 that need-achievement affects significantly creative production at 0.05 level (F= 6.27) but self-concept does not affect significantly creative production at .05 level (F= 3.27). In the same way the interaction effect of need-achievement and self-concept do not affect significantly creative production at .05 level (F= 0.12)

Table No.56. : Mean and S.D. values of creative fluency related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	36.23	36.50	36.39
	S.D.	8.68	9.79	9.34
High	N	26	26	52
	Mean	39.15	40.77	39.96
	S.D.	6.20	14.14	10.95
Total	N	52	62	114
	Mean	37.69	38.29	38.02
	S.D.	7.68	12.00	10.26

It may be observed from table No. 56 that subject of high need-achievement have more creative fluency (Mean = 39.96) inspite of low need-achievement (Mean= 36.39). subjects of high self-concept have more creative fluency (Mean= 38.29) in comparison of the subject of low self-concept (Mean= 37.69). Subjects of high need-adjustment and high self-concept have highest level of creative fluency (Mean= 40.77)





Bar-diagram No.32- Showing mean value of creative fluency related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on creative fluency, 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.57.

Table No.57 - 'F' ratio showing the effect of need-achievement and self-concept on creative fluency.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	366.54	1	366.54	3.47 P> .05
SSb (Self-C.)	25.25	1	25.25	0.24 P> .05
SSab (Interaction)	12.77	1	12.77	0.12 P>.05
SS within Cell	11609.62	110	105.54	

F-ratio = .05 level = 3.94

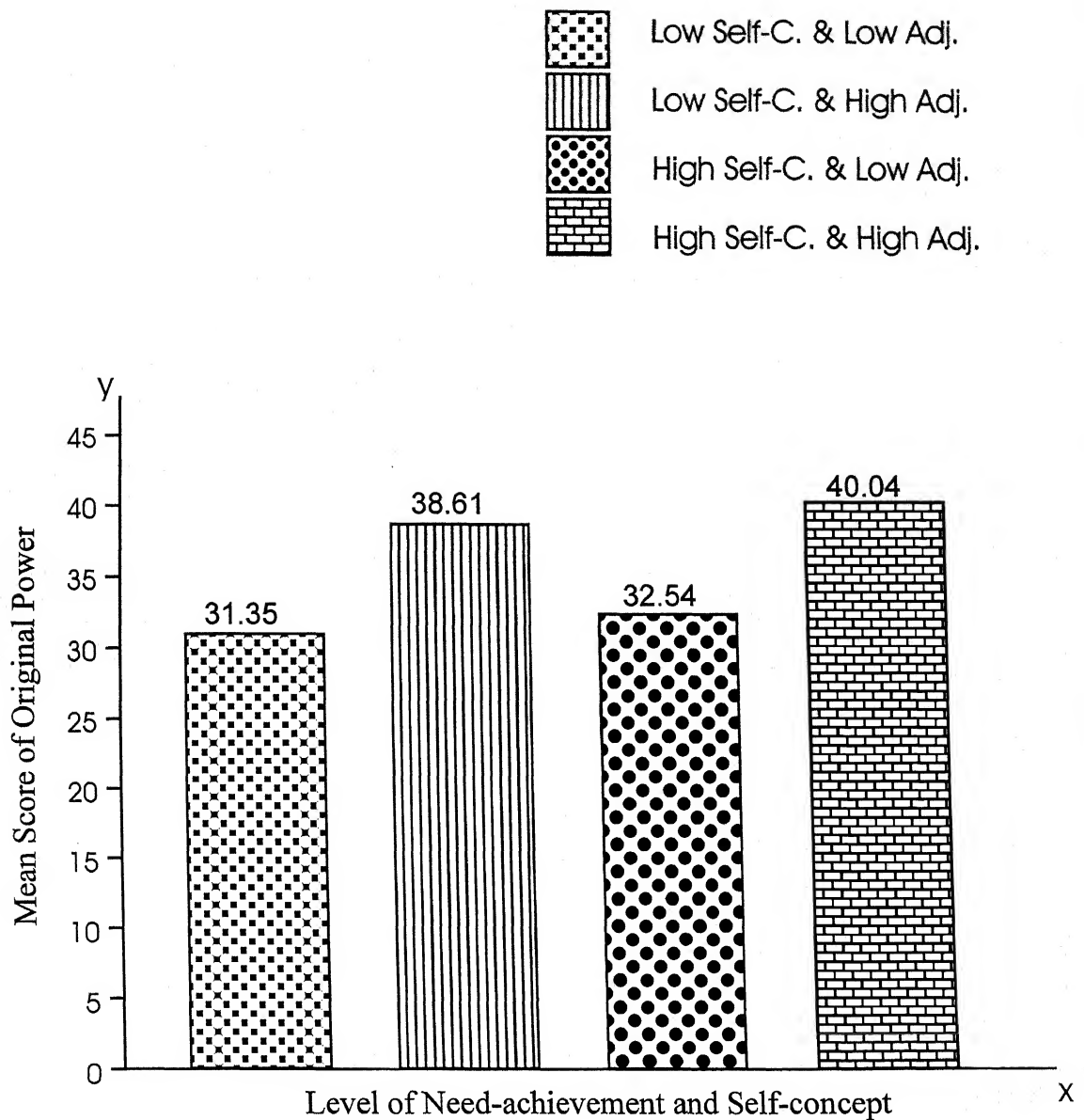
.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and self-concept (low/high level) on creative fluency. It is evident from table No. 57 that need-achievement does not affect significantly creative fluency at .05 level (F= 3.47) In the same way self-concept also does not affect significantly creative fluency at .05 level (F= 0.24). The interaction effect of need-achievement and self-concept do not affect significantly creative fluency at .05 level (F= 0.12)

Table No.58. : Mean and S.D. values of Original power of creativity related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	31.35	38.61	35.57
	S.D.	11.86	8.59	10.74
High	N	26	26	52
	Mean	32.54	40.04	36.29
	S.D.	9.35	10.13	10.44
Total	N	52	62	114
	Mean	31.95	39.21	35.90
	S.D.	10.70	9.29	10.61

It may be observed from table No. 58 that subjects of high need-achievement have more original power of creativity (Mean= 36.29) than those of the low need-achievement (Mean= 35.57). Subjects of high self-concept have more original power of creativity (Mean= 39.21) in comparison of low self-concept (Mean= 31.95). Low need-achievement and low self-concept subjects have least original power of creativity (Mean= 31.35) while subjects of high need-achievement and high self-concept have highest level of original power of creativity (Mean= 40.04).



Bar-diagram No.33- Showing mean value of original power related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on Original power of creativity. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in Table No.59.

Table No.59 - 'F' ratio showing the effect of need-achievement and self-concept on Original power of creativity.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	48.80	1	48.80	0.48 P> .05
SSb (Self-C.)	1545.31	1	1545.31	15.10 P< .01
SSab (Interaction)	0	1	0	0 P>.05
SS within Cell	11253.86	110	102.31	

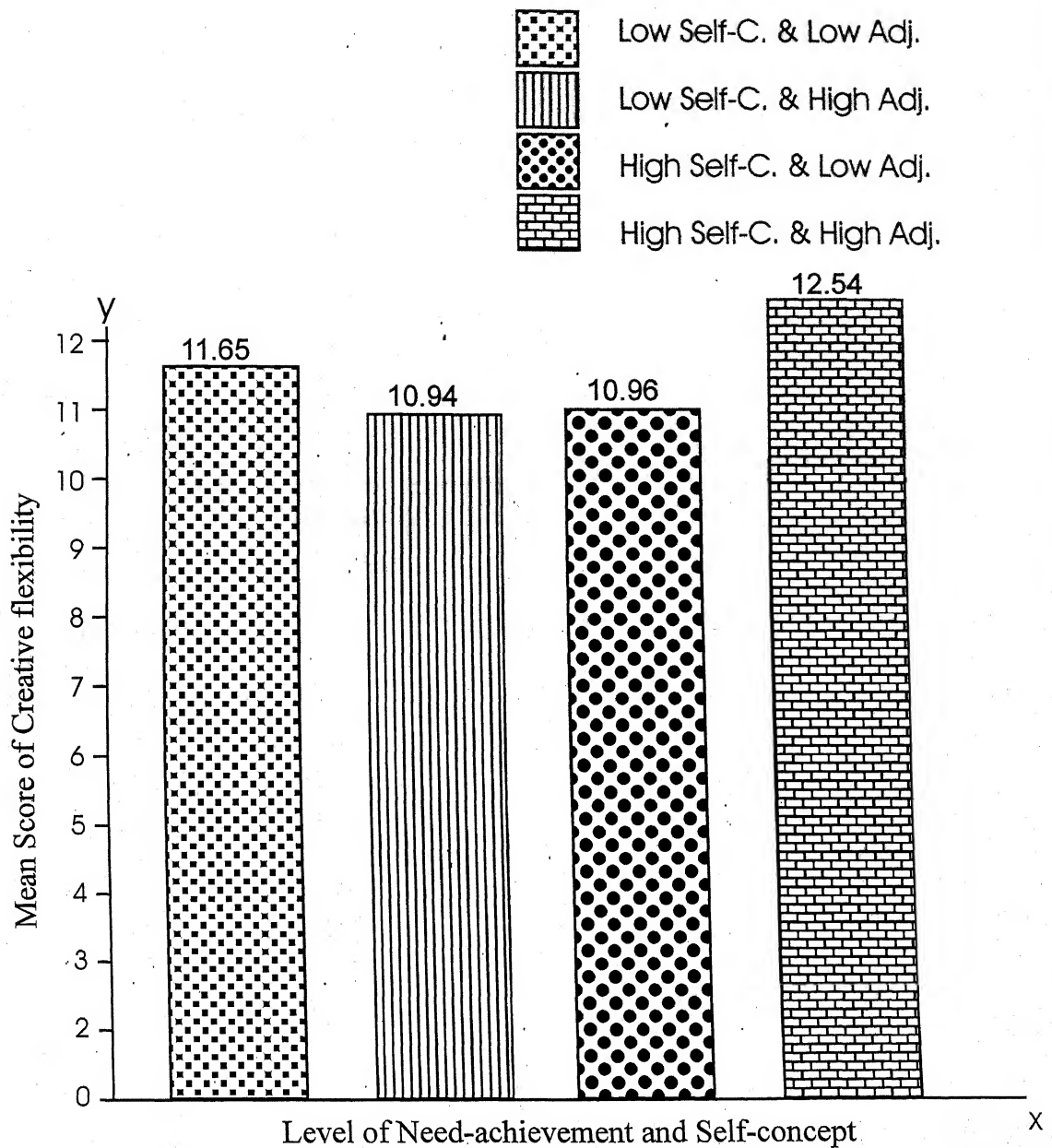
F-ratio = .05 level = 3.94  
.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and self-concept (low/high level) on Original power of creativity. It is evident from table No. 59 that need-achievement does not affect significantly Original power of creativity at .05 level (F= 0.48) But self-concept affects significantly Original power of creativity at .05 level (F= 15.10). The interaction effect of need-achievement and self-concept do not affect significantly Original power of creativity at .05 level (F= 0)

Table No.60. : Mean and S.D. values of creative flexibility related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	11.65	10.94	11.24
	S.D.	3.79	3.41	3.59
High	N	26	26	52
	Mean	10.96	12.54	11.75
	S.D.	3.40	6.40	5.18
Total	N	52	62	114
	Mean	11.31	11.61	11.47
	S.D.	3.62	4.95	4.39

It may be observed from table No. 60 that there is no sharp difference between the high need-achievement subjects (Mean = 11.75) and low need achievement subjects (Mean = 11.24) in the same way there is no sharp difference between the subject of high self-concept (Mean = 11.61) and subjects of low self-concept (Mean = 11.31). Subjects of high and achievement and high self-concept have highest level of creative flexibility power (Mean = 12.54)



Bar-diagram No.34- Showing mean value of creative flexibility related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on creative flexibility. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in table No. 61.

Table No.61 - 'F' ratio showing the effect of need-achievement and self-concept on creative flexibility.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	5.96	1	5.96	0.30 $P > .05$
SSb (Self-C.)	5.39	1	5.39	0.27 $P > .05$
SSab (Interaction)	36.88	1	36.88	1.88 $P > .05$
SS within Cell	2157.19	110	19.61	

F-ratio = 0.05 level = 3.94

0.01 level = 6.90

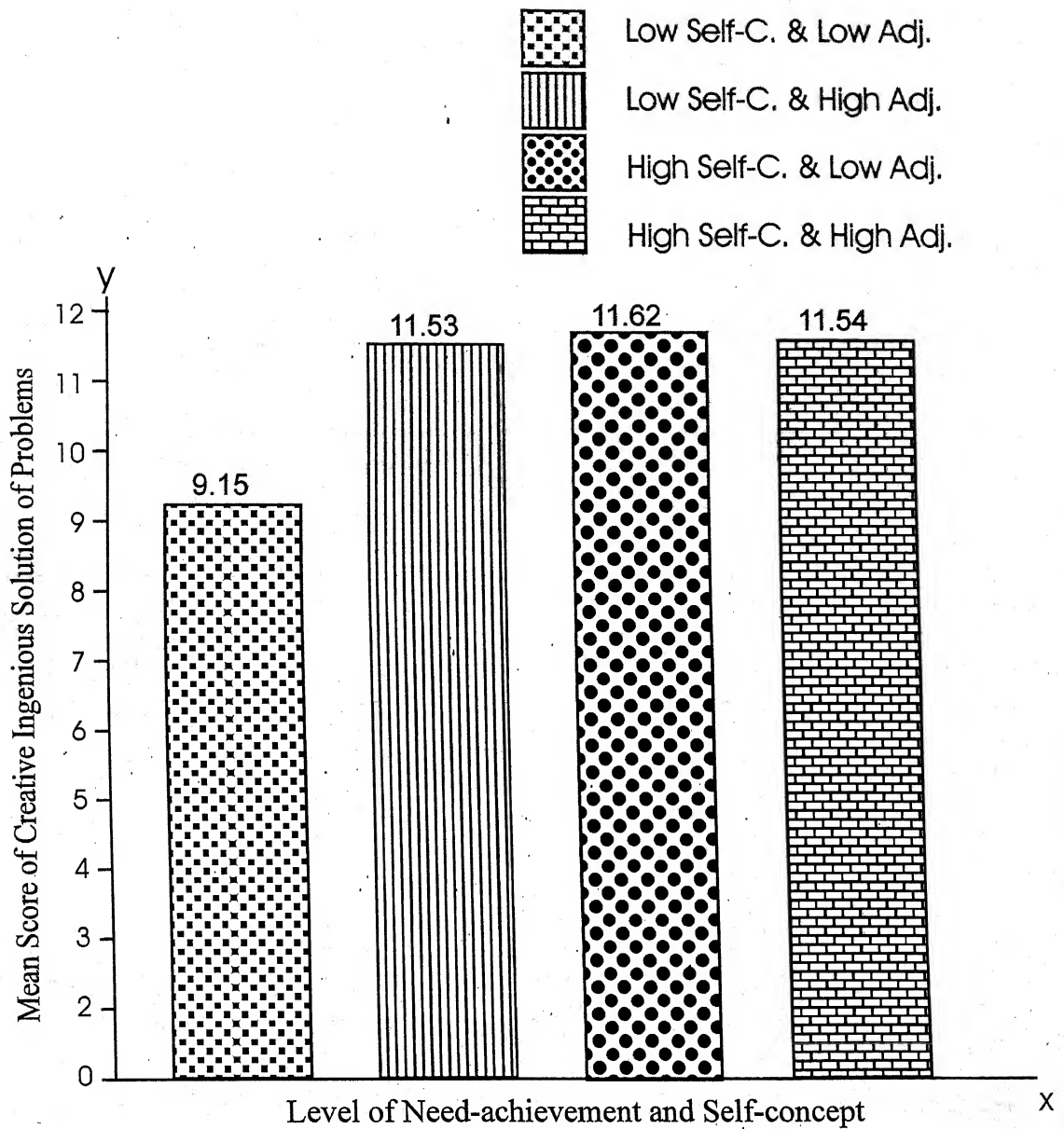
F-ratio shows the effect of need-achievement (low/high level) and self-concept (low/high level) on creative flexibility. It is evident from table No.61 that need-achievement does not affect significant creative flexibility at .05 level ( $F = 0.30$ ). In the same way self-concept also does not affect significantly creative flexibility at .05 level ( $F = 0.27$ ). The interaction effect of need-achievement and self-concept do not affect significantly creative flexibility at .05 level ( $F = 1.88$ )



Table No.62. : Mean and S.D. values of creative ingenious solution of problem related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	9.15	11.53	10.53
	S.D.	3.94	3.88	4.08
High	N	26	26	52
	Mean	11.62	11.54	11.58
	S.D.	3.32	3.61	3.47
Total	N	52	62	114
	Mean	10.39	11.53	11.01
	S.D.	3.85	3.77	3.85

It may be observed from table No. 62 that the subjects high need-achievement have more creative ingenious solution of problem (Mean= 11.58) than those of the low need-achievement (Mean= 10.53). Subjects of high self-concept have more creative ingenious solution of problem (Mean= 11.53) in comparison of the subjects of low self-concept (Mean= 10.39) low self-concept and low need-achievement have least creative ingenious solution of problem (Mean= 9.15)



Bar-diagram No.35- Showing mean value of creative ingenious solution of problems related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on creative ingenious solution of problem. 2x2 factorial design has been used and analysis of variance has been calculated. The results are given in table No. 63.

Table No.63 - 'F' ratio showing the effect of need-achievement and self-concept on Creative ingenious solution of problem..

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	43.41	1	43.41	3.04 P> .05
SSb (Self-C.)	37.45	1	37.45	2.63 P> .05
SSab (Interaction)	42.84	1	42.84	3.00 P> .05
SS within Cell	1568.96	110	14.26	

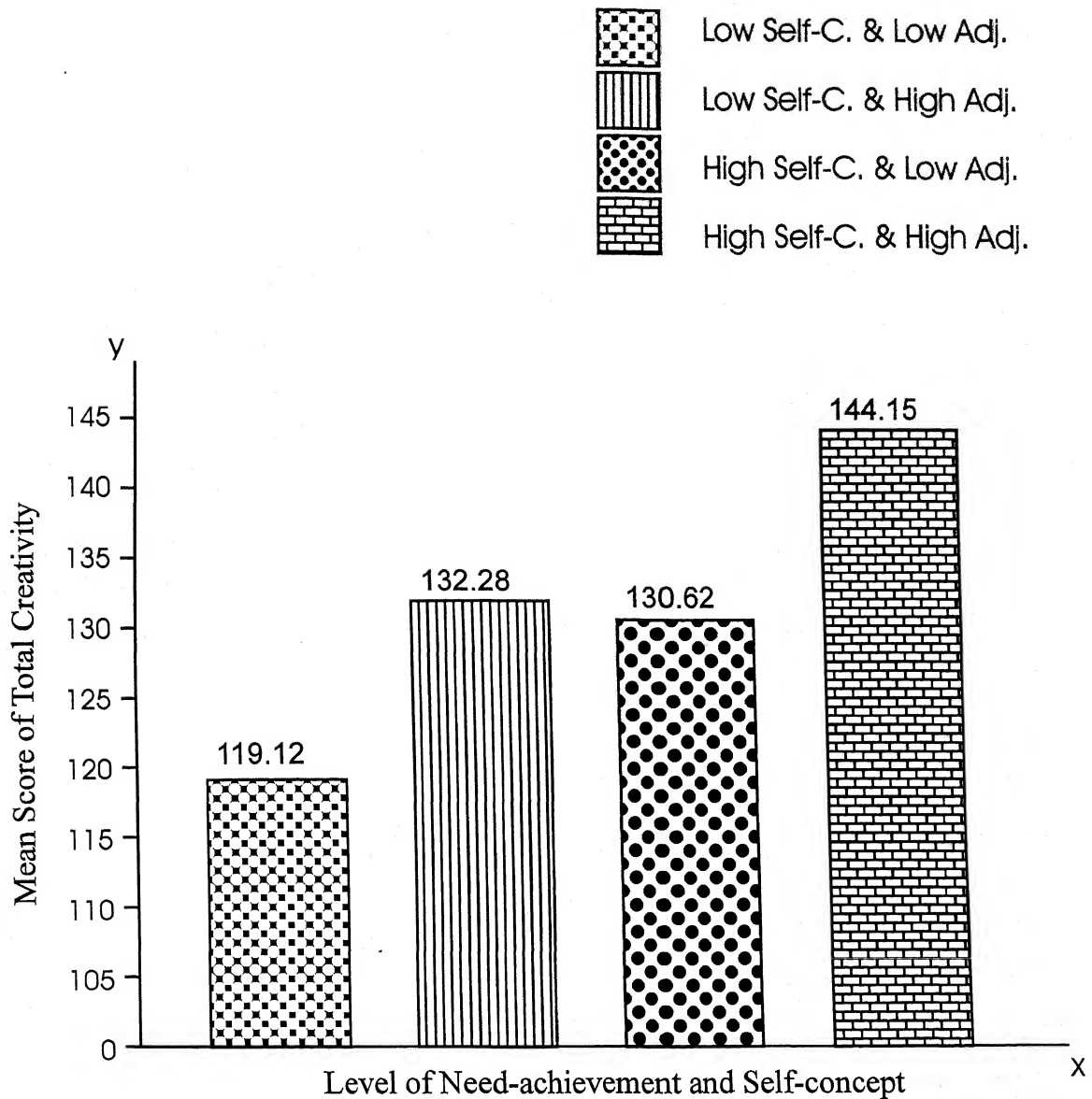
F-ratio = .05 level = 3.94  
.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and self-concept (low/high level) on Creative ingenious solution of problem. It is evident from table No.63 that need-achievement does not affect significantly. Creative ingenious solution of problem at .05 level ( $F = 3.04$ ). In the same way self-concept also does not affect significantly Creative ingenious solution of problem. at .05 level ( $F = 2.63$ ). The interaction effect of need-achievement and self-concept do not affect significantly Creative ingenious solution of problem at .05 level ( $F = 3.00$ )

Table No.64. : Mean and S.D. values of Total Creativity related to self-concept (low/high level) and need-achievement (low/high level).

Self-concept Need-achievement		Low	High	Total
Low	N	26	36	62
	Mean	119.12	132.28	126.76
	S.D.	23.78	20.55	22.90
High	N	26	26	52
	Mean	130.62	144.15	137.39
	S.D.	14.49	25.85	22.02
Total	N	52	62	114
	Mean	124.87	137.26	131.61
	S.D.	20.51	23.67	23.12

It may be observed from table No. 64 that the subjects high need-achievement have more creative power (Mean= 137.39) than those of the low need-achievement (Mean= 126.76); Subjects of high self-concept also have more creative power (Mean= 137.26) in comparison of the subjects of low self-concept (Mean= 124.87). Low need-achievement and low self-concept subjects have least creative power (Mean=119.12) while subjects of high need-achievement and high self-concept have highest level of creative power (Mean= 144.15).



Bar-diagram No.36- Showing mean value of total creative power related to need-achievement (low/high) and self-concept (low/high) levels.

To find out the effect of need-achievement (low/high level) and self-concept (low/high level) on total creativity. 2x2 factorial design has been used ? and analysis of variance has been calculated. The results are given in table No. 65.

Table No.65 - 'F' ratio showing the effect of need-achievement and self-concept on Total creativity.

Source of variation	Sum of square	df	Mean square	F-ratio
SSa (Need-ach.)	3873.64	1	3873.64	8.07 P< .01
SSb (Self-C.)	3009.77	1	3009.77	6.27 P< .05
SSab (Interaction)	2042.92	1	2042.92	4.26 P< .05
SS within Cell	52767.4	110	479.70	

F-ratio = .05 level = 3.94

.01 level = 6.90

F-ratio shows the effect of need-achievement (low/high level) and self-concept (low/high level) on total creative power. It is evident from table No.65 that need-achievement affects significantly total Creativity .01 level (F= 8.07). In the same way self-concept also affects significantly total creativity at .05 level (F= 6.27). The interaction effect of need-achievement and self-concept affects significantly total creativity at .05 level (F= 4.26)

# **CHAPTER - Vth**

## **DISCUSSION AND CONCLUSION**

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On the basis of analysis of data and their Interpretations a concluding discussion and results are being presented in the following pages. There are three main variables whose effect have been studied on creativity i.e. Adjustment, Self-concept and Need-achievement.

Under each variable both low and high levels are compared for their creative power through three powerful statistical operations like 't'-test, ANOVA and 2x2 factorial analysis.

### **I. EFFECT OF ADJUSTMENT UPON CREATIVITY :**

Overall comparison of creativity in total and its sub-areas on the basis of all three adjustment levels are given here. There is only one area of creativity i.e. original power on which significant difference can be observed on the basis of F-ratio. Original power is highest among the pupils of high adjustment and lowest among the low adjusted pupils. High and average adjusted pupils have almost the same level of original power of creativity (Average adjusted mean = 38.05, High adjusted mean= 39.66 and  $t_{2,3} = 1.42$ ) while low adjusted pupils have a significant mean difference than those average and high adjusted pupils ( $t_{1,2} = 3.09$   $P < .01$  and  $t_{1,3} = 3.90$   $P < .01$  respectively).



As far as creativity in total is concerned low adjusted pupils are least creative (Mean= 131.06) while high adjusted pupils are most creative (Mean= 139.54). Average adjusted and high adjusted pupils have same level of creativity because there is no significant difference between the mean of these two groups. On the other hand high and average adjusted pupils have higher mean score significant at 0.01 level than those of low adjusted pupils.

On the basis of the above discussion the following results have been obtained.

1. Adjustment has no effect on four areas of creativity i.e. creative production, creative fluency, flexibility and ingenious solution of the problems.
2. Adjustment significantly affects original power of creativity. Low adjusted pupils have least original power of creativity while highly adjusted pupils have highest original power of creativity.
3. As far as creativity in total is concerned the high adjusted pupils have high level of creativity. On the other hand low adjusted pupils are least creative.
4. When adjustment level increases creative power also increases.

Passi (1972) has defined creativity as "A multidimensional (Verbal and nonverbal) attributes differentially distributed among

people which includes chiefly the factors of seeing problems, fluency, flexibility, inquisitiveness and persistency.

It is found that more intelligent students were better adjusted than those who were less endowed (Venkata Rami Reddy 1975). Those whose parents were better educated exhibited better adjustment [Venkata Rami Reddy (1977), Conklin (1976), Kurian (1976) and Srivastava et.al 1975]

**Therefore the Hypothesis No. A<sub>1</sub> stating that- "There is a significant effect of adjustment upon creativity" is partially accepted.** It has been also found that adjustment has no effect except original power as well as creativity in total.

## **2. EFFECT OF SELF-CONCEPT UPON CREATIVITY :**

Self-concept has impact upon creativity in total alongwith the three areas of creativity i.e. creative production, creative fluency and original power. F-ratio is significant in all areas of creativity at .05 level.

On creative production, f-ratio is 3.38 significant at .01 level. It means that creative production is influenced by self-concept. Low self-concept pupils have mean score 34.87 which is lowest while average self-concept and high self-concept pupils have mean score 37.57 and 37.91 respectively. It means that average and high self-concept pupils have same level of creative production.

F-ratio 3.85 clearly reveals that self-concept has significant impact upon creative fluency at .05 level. Creative fluency in low self-concept pupils and highest among average self-concept pupils. t-value 3.23 significant at .01 level reveals that there is a significant difference on the creative fluency of low self-concept pupils and average self-concept pupils. Average self-concept pupils have higher mean score 40.02 than those of low self-concept pupils ( $M=37.18$ )

F-ratio 9.51 reveals that self-concept has its vast impact upon original power of creativity. Low self-concept pupils have least original power (Mean= 33.68). High and average group of self-concept pupils have almost same level of original power of creativity (Average Self-concept mean= 37.69 and High self-concept mean= 39.04). Low self-concept group has a significant mean difference than those of average and high self-concept group ( $t_{1-2} = 3.26$   $P < .01$ ,  $t_{1-3} = 3.94$   $P < .01$ ) respectively.

As far as creativity in total is concerned F-ratio 11.06 significant at .01 level reveals that self-concept has its impact upon creativity. Low self-concept pupils are least creative (Mean= 128.32) while high self-concept pupils are most creative (Mean= 138.44). Average and high self-concept pupils have same level of creativity because there is no significant difference between the mean of these two groups. On the other hand high and average self-concept pupils have higher mean score on creativity than those of low self-concept pupils significantly at .01 level.

On the basis of above discussion the following results have been obtained :

1. Self-concept has no effect on two areas of creativity i.e. creative flexibility and Ingenious solution of problems.
2. Self-concept significant affects three areas of creativity i.e. creative production creative fluency and original power.
3. Low self-concept pupils have least level of creative production. Creative fluency and original power while high self-concept pupils have highest level of creative production, creative fluency and original power.
4. Average self-concept pupils and high self-concept pupils have same level of creative production and original power.
5. Low self-concept pupils and high self-concept pupils have no significant mean difference on creative fluency.
6. As far as creativity in total is concerned high self-concept pupils have high level of creativity. On the other hand low self-concept pupils have low level of creativity.

Above finding proves that when self-concept increases, creative power also increases. Studies done by Galton (1869-1874), Taylor and Holland (1964) and others prove that self of the creative individual is highly motivated and it directs him to achieve something

new. It also summarize the personality characteristics of creative persons as self-sufficient, independent in judgement, more suitable and resourceful and self-controlled emotionally etc.

Self is key stone to personality (Cattell, 1957) and gives consistency to personality (Lewin, 1951) Gakhars (1974) study concluded that measures of creativity and intelligence and traits of personality cluster together in specific combinations yielding common factors. The creative person possess the specific personality characteristics such as independence, feminity of interest, dominance self-assertion, Self-acceptance and complexity of personality. The self of creative individual is highly motivated.

Thus the Hypothesis No. A<sub>2</sub> stating that- "There is a significant effect of self-concept upon creativity" is fully accepted.

### **3. THE EFFECT OF NEED-ACHIEVEMENT UPON CREATIVITY :**

Overall comparison of creativity and its sub-areas on the basis of all the three need-achievement levels are given here- There are two areas of creativity i.e.- Creative production and creative fluency on which significant difference can be observed on the basis of F-ratio. High and average groups of need-achievement have almost the same level of creative production (Average need-achievement Mean = 40.60, High need-achievement Mean = 38.08) while low achievement group has a significant mean difference than those of average and the group

of high need-achievement ( $t_{1.2} = 2.22$ ,  $P < .05$ ,  $t_{1.3} = 2.16$   $P < .05$ ) respectively.

F-ratio= 7.62 reveals that need-achievement has a vast impact upon the creative fluency. Pupils of low need-achievement have least creative fluency (Mean= 36.59). The power of creative fluency is higher in the group of average need-achievement (Mean= 38.98) and the group of high need-achievement has highest level of creative fluency (Mean= 41.15)

On creative fluency significant difference between pupils of low and high achievement is significant at .01 level ( $t_{1.3} = 3.93$ ). While on creative fluency average need-achieved pupils have higher mean than those of low achieved pupils significant at .05 level ( $t_{1.2} = 2.41$ ) average need-achieved pupils have low mean score than those of high need-achieved pupils on creative fluency ( $t_{2.3} = 2.03$   $P < .05$ )

As for as creativity in total is concerned low need-achieved pupils are least creative (Mean= 130.2) while high need-achieved pupils are most creative (Mean= 139.03). Average need-achieved and high need-achieved pupils have the same level of creativity because there is not any significant difference between the mean of these two groups. On the other hand high and average need-achieved pupils have higher mean score on creativity than those of low need-achieved pupils significant at .01 level.

On the basis of above discussions the following results have been obtained :-

1. Need-achievement has not any effect on three areas of creativity i.e. Original power creative flexibility and ingenious solution of problem.
2. Need-achievement significantly affects these two areas of creativity i.e. creative production, creative fluency.
3. Low Need-achieved pupils have least level of creative production and creative fluency while highly Need-achieved pupils have highest level of creative production and creative fluency.
4. Average Need-achieved pupils have average power of creative production and creative fluency.
5. As for as creativity in total is concerned high need-achieved pupils have high level of creativity. On the other hand low need-achieved pupils have low level of creativity.
6. Creative power increases with the increasement of need-achievement.

S.K. Bawa and Parvinder Kaur (1995) studied relationship between creativity and academic achievement and found significant strong association between scores on creativity measures and academic achievement measures. This is almost equally true for both male and



female subjects. Raphelsoon (1956) has presented evidence that high need-achievement group showed the highest level of constrained performance.

**Therefore the Hypothesis No. A<sub>3</sub>. stating that- "There is a significant effect of need-achievement upon creativity" is accepted on three sub areas of creativity has been not effected except creative production and creative fluency as well as creativity in total.**

There is a controversy among research workers in explaining the meaning and nature of creativity. Rodes (1961) has attempted to condense the definition of creativity into person, process, press and product. Torrance (1965) has classified the same into (a) newness as criterion (b) Creativity versus conformity (c) creativity as process (d) creativity through the approaches of mental abilities (e) Levels of creativity (f) Approaches through studies of creative person. Kneller (1965) states that creativity through the approaches of person may be considered in terms of physiology temperament. Personal attitudes habits and value of person who creates.

#### **4. INTERACTION EFFECT OF ADJUSTMENT AND SELF-CONCEPT UPON CREATIVITY:**

Adjustment (low and high) and self-concept (low and high) plays an important role in the development of creativity. In this section an attempt has been made to study the effect of adjustment and self-concept variable upon creativity and its five sub-areas.



Self-concept significantly affects creativity ( $F= 9.10, P<.01$ ).

High self-concept pupils have more creative power than that of low self-concept pupils. Self-concept also affects significantly original power of creativity (sub-area of creativity) at 0.01 level ( $F= 15.71, P<.01$ ). Original power of creativity is high among high self-concept Ss and it is low in low self-concept Ss. The rest of sub-areas of creativity i.e. creative production, Creative fluency. Creative flexibility and ingenious solution of problem are not affected by the variables of self-concept.

The adjustment also plays an important role in effecting the creativity. There is only one area of creativity i.e. original power of creativity which is affected by adjustment f-ratio 4.35,  $P<.05$  clearly indicates that adjustment affects the original power of creativity. High adjusted Ss have higher original power of creativity than those of low adjusted Ss. Adjustment has not any affect upon creativity as a whole as well as the rest of four sub area i.e. creative production, creative fluency, creative flexibility and ingenious solution of problem.

Self-concept and adjustment do not have any interaction effect upon creativity.

Thus in the light of above discussions the following results are obtained :-

1. Self-concept affects creativity as a whole ( $F= 9.10 P<.01$ ).
2. High self-concept Ss have high creative power than that of low self-concept Ss.

3. High self-concept Ss have higher original power of creativity than those of low self-concept Ss.
4. There is not any significant effect of self-concept upon four sub-areas of creativity i.e. creative production, fluency, flexibility and ingenious solution of problems.
5. Adjustment has its impact upon one sub-area of creativity i.e. original power of creativity. Original power of creativity is higher in high adjusted Ss and much low among low adjusted Ss.
6. Self-concept and adjustment have no interaction effect upon creativity.

Thus the above finding proves that creative individuals remains happy in creating some thing new and original. Generally the creative person gives a pleasing attitude, towards life and day activities. Schlenker (1985) self is the general link between biological and social process within the individual. General behaviour academic achievement and personal adjustment of an individual tend to be influenced by his self-concept.

Adolescence is the period of stress and strain and is fraught with many problem of adjustment. But growth in age and education is normally accompanied by betterment of adjustment in almost all fields of adjustment (Anirudhha Pandey 1976).

Therefore the Hypothesis No. B<sub>1</sub> stating that- "There is a significant interaction effect of adjustment and self-concept upon creativity" is partially accepted. Adjustment and self-concept affect significantly creativity but interaction effect of both variables on creativity has not been obtained.

##### **5. INTERACTION EFFECT OF ADJUSTMENT AND NEED-ACHIEVEMENT UPON CREATIVITY:**

In this section an attempt has been made to study effect of need-achievement and adjustment upon creativity and its five sub-areas. Need-achievement significantly affects creative production and creative fluency. On creative production f-ratio 5.56  $P < .01$  level while on creative fluency f-ratio 18.44,  $P < .01$ . On both areas of creativity high need-achieved Ss have higher Mean score than those of low need-achieved Ss. Need-achievement also affects significantly creativity as a whole. High need-achieved Ss have mean score 139.67 while low need-achieved Ss have mean score 124.32. F-ratio 12.62 is significant at .01 level. Rest of three sub-areas of creativity i.e. flexibility, original power and ingenious solution of problem are not effected by the variable of need-achievement.

Adjustment also plays an important role in effecting the creativity. There is only one sub-area of creativity i.e. original power of creativity which is affected by adjustment. F-ratio 13.94,  $P < .01$  clearly indicates that adjustment affects original power of creativity. High adjusted Ss have higher original power of creativity than those of

low adjusted Ss. Adjustment affects significantly creativity ( $F= 10.81$ ,  $P<.01$ ). High adjusted Ss have more creative power than those of low adjusted Ss. Adjustment has not any effect upon rest of the four sub-areas of creativity i.e. creative production, creative fluency, flexibility and ingenious solution of problem.

Need-achievement and adjustment also have interaction effect upon creativity. Interaction effect of need-achievement and adjustment have its impact upon creative production ( $F= 4.01$ ) and creative fluency ( $F= 5.43$ ) significant at 0.05 level. But there is no interaction effect of need-achievement and adjustment on three sub-areas of creativity i.e. creative flexibility, Original power of creativity and ingenious solution of problem.

Thus in the light of above discussion and interpretation the following results have been obtained.

1. Need-achievement affects creativity as a whole ( $F=12.62$ ,  $P<.01$ )
2. High achieved Ss have high creative production power ( $P<.05$ ) and also have high creative fluency power ( $P<.05$ ) than those of low achieved Ss.
3. High achieved Ss are more creative than those of low achieved Ss.
4. There is not any significant effect of need-achievement upon three sub-areas of creativity i.e. creative flexibility, Original power and ingenious solution of problems.

5. Adjustment affects creativity as whole ( $F = 10.81$ ,  $P < .01$ )
6. High adjusted Ss are significantly more creative than those of low adjusted Ss.
7. Adjustment has its impact upon sub-area of creativity i.e. original power is significantly high in the Ss of high adjusted and much low in the low adjusted Ss.
8. Need-achievement and adjustment also have significant interaction effect upon two sub areas of creativity i.e. creative production and creative fluency F-ratio 4.01 and 5.43 respectively significant at .0.05 level.

The period of adolescence is the most important period of human life. Several emperical studies in this area have concentrated their attention on the relation between adjustment and achievement (Anderson and spenser 1963, Combs and Danis 1967, Ahluwalia 1969, Chawla 1970) and found positive relationship between adjustment and achievement.

**Therefore the Hypothesis No. B<sub>2</sub> stating that- "There is a significant interaction effect of adjustment and need-achievement upon creativity" is fully accepted.**

## 6. INTERACTION EFFECT OF SELF-CONCEPT AND NEED-ACHIEVEMENT UPON CREATIVITY.

In this section an attempt has been made to study the effect of self-concept and need-achievement upon creativity and its five sub-areas.

Self-concept significantly affects original power of creativity. F-ratio 15.10 significant at 0.01 level. High self-concept subjects have significant higher mean score than those of low self-concept subjects.

Need-achievement also affects creative production. High need-achieved subjects have significant higher mean score than that of low need-achieved subjects. F-ratio 6.27 is significant at 0.05 level.

Self-concept and need-achievement both have significant effect on creativity. High self-concept pupils have higher power of creativity in comparison to the pupils of low self-concept ( $F = 6.27$ ,  $P < .05$ ). In the same way creativity is also influenced by the need-achievement. Pupils of high need-achievement are more creative than pupils of low need-achievement F-ratio 8.07 significant at 0.01 level prove it.

Self-concept and need-achievement also have interaction effect upon creativity. Interaction effect of both variables i.e. self-concept and need-achievement significant at 0.05 level ( $F = 4.26$ )

Numerous studies have recorded self-concept to be highly related to academic achievement (Brookover and Thomas 1963)

cambell, 1965 (Shah J.H. 1978) studied the relationship of self-concept and achievement of secondary schools pupils and found positive and significant relationship between self-concept and academic achievement.

Colemen 1966, Mayers 1966, Caplin 1968, Deo and Deo (1965) and Sharma (1970) found that middle scored group is higher in achievement than extreme self-concept groups.

Shanti nayal etal (1989) concluded that self-concept is directly related with academic achievement. Padhi (1990) found that class room environment of students correlated positively and significantly with the achievement and self-concept of the Urban rural and total sample.

In the light of above discussion and interpretation the following results have been obtained :-

1. Self-concept significantly affects creativity as a whole ( $F= 6.27, P<.05$ ).
2. High self-concept Ss are more creative than those of two self-concept Ss.
3. Subjects of high self-concept have higher original power of creativity than low self-concept subjects.
4. There is no significant effect of self-concept upon four areas of creativity i.e. creative production, creative fluency, creative flexibility and ingenious solution of problems.
5. Need-achievement also affects creativity as a whole ( $F= 8.07, P<.01$ )

6. Subjects of high need-achievement are more creative than low need-achievement subjects.
7. High need-achievement subjects have higher power of creative production in respect of the subjects having low need-achievement.
8. Self-concept and need-achievement also have significant interaction effect on creativity as a whole. The interaction effect is significant at 0.05 level ( $F = 4.26$ ,  $P < 0.05$ )

Creativity is defined by Baker (1962) "as bringing about notable change in things, thoughts social structures through action, thinking which results in a situation not previously known to us."

Wallach (1962) states four stages of the creative process that is preparation, incubation, illumination and verification. According to thinkers, one of the important aims of the education is to foster and stimulate creativity. This has been further stressed by the government in the National policy of education (1986).

Therefore the Hypothesis No. B<sub>3</sub> stating that- "There is a significant interaction effect of self-concept and need-achievement upon creativity" is fully accepted.

#### **SUGGESTION FOR FURTHER STUDIES :**

Researcher during the conduction of the study has come across, some very important facts about which further studies are needed. A few of them are being stated below :-



1. As in the present study, three variables i.e. self-concept, adjustment and need-achievement have been studied so as to find out their affect on creativity of college going students. In this regard following variables could also be studied like- intelligence, different personality factors i.e. anxiety, aspiration level imagination power, feeling of love and rejection etc., social aspects environmental etc. which could be studied separately.
2. It would also be worth while, that apart from such study, some other psychological phenomenon like. Healthy adolescent and his creativity. Relationship between creativity and inter-personal problem solving skills in adults, cognitive regularities in creative activity, motivation and creativity, creativity and self-determination in personality, the question of moral creativity at 2001 are so may interesting topics which could also be studied.
3. Study could very well be conducted on the population of pre adolescents school going. In this age group creativity also plays an important role.
4. It would also be a good effort to find out creativity of rural area's student and comparison between rural and Urban students.
5. A study on the creativity of non-school going children could also be conducted because creativity is also seen in the activity of non-school going children.

6. Compative study could be possible among science arts and commarce categories of graduate college students.
7. Creativity is influenced by rapid changing in life style of people or not, can also be a good research work because in modern competitive world, every body wants to prove himself.
8. As for as creativity of professional college students like engineering colleges, medical colleges, management institutes and polytechnic college etc also be studied.
9. "Hostlers are more creative" may be a good topic for research.

# **CHAPTER - VIth**

## SUMMARY

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Creativity is the result of mysterious functioning of mental process. This process subsist on the experiences right from childhood to adolescence (Concept formation, education of relation, concretization images ideas). In certain studies carried on by Guilford and others. It was established that creativity is a measurable quality. If one goes through Bergon's theory of creative education , Leoyed Morgan's concept of emergence withead's philosophy of organism, one can't but come to the conclusion that creativity is certainly determining capacity of nature (formulation of consequential entities and of new and consequential patterns of activity). This lead to the formation of fundamental dispositions in personality. The addition of the formation (Creation, construction, reconstruction) process and effect to the inventory of dispositions properties of personalities it is therefore clear that creativity is a capricious process which rarely shows itself when called upon.

In recent years, creativity has come from the view that creativity is a cognitive variable. Creative process always focus a strange approach from society. A good amount of research work has been done in western countries as well as in India. Albert has published personality dynamics of creativity inrelation to other aspect of

creativity. It seems sufficient to say here that the empirical view have indicated that human intellectual cognitive attitudinal, actional, infantils, experience emotional and behavioural factors play main role in creativity determination. Among intellectual factors anxiety, aspiration, frustration, imagination, memory, ability totality with concept, logical thinking and reasoning on the cognitive side perceptual factors play vital role.

Creation is an expression of the inner state of the creator and it is potential which influences human activity in almost all spheres, scientific, technical and artistic fields, it is an inspired trait.

As a measurement area, the psychology of creativity cuts across the domains of perception ideation, temperament and motivation. The kind of behavioural products, we may designate as creative, are of course quite various i.e. a noble solution to a problem in mathematics, a mechanical invention, the discovery of a new chemical process.

## **ADJUSTMENT :**

Adjustment consist of psychological process by means of which the individual manages or copies with various demands or pressures.

Adjustment as a process involves the complex interaction of an intricate set of behavioural, emotional systems with each other.

Adjustment involves a cessation of response to certain stimuli and on intensification of response to other stimuli. This is the selective awareness dimension of adjustment.

The process of human adjustment also depends on a degree of acceptance of things that can neither be ignored (adopted to) nor can be changed.

Life in general requires the acknowledgement of certain limitations and renunciation of certain specific goal. This means that acceptance of the inevitable factor is a part of satisfactory stage over all adjustment process.

### **SELF-CONCEPT :**

The individual's self (Jiva) deluded by forgetfulness of his identity with the divine self, bewildered by his ego, grieves and his sad but when he recognizes his own true self, and beholds his glory, he grieves no more (Mundaka upanished).

Torrance (1962) emphasised that creative ability contributes significantly to the acquisition of the education skills and informations. The creative person possess the specific personality characteristic such as autonomy, independence, ferminity of interest, dominance, self-assertion, self-acceptance, resourcefulness and complexity of personality. The self of the creative individual is highly motivated and it directs him to achieve something new.

The self-concept, like other concept is a set of rules for processing information this particular set has a central regulatory function governing all information-processing and of monitoring sensory input.

The set of rules operates as an executive monitor in information processing models similar to one suggested by Bruner (1973) and functions like ego control processes proposed by Freud (1923), Hartzman (1964), states that "The ego organises and controls motility and perception- perception of the outer world but probably also of the self. The ego's co-ordinating or intergrating tendencies" as well as the differentiating factors- comprise an organising function' representing one level of mental self-regulating in man.

### **NEED-ACHIEVEMENT :**

Achievement motive is considered as a disposition to approach success-

The principle of Motivation-

$$\text{Motivation} = F (\text{Motive} \times \text{expectancy} \times \text{incentives})$$

F = function

Particular Motive = N-achievement : Performance is positively related to the strength of the particular motive only when an expectancy of satisfying that motive through performance has been aroused, and when expectancies of satisfying other motive through the same action have not been sufficiently aroused conformed the simple relationship.

The two extreme partner of aspirant behaviour which were designated a hope of success and fear of failure by Clark, et.al., are to be considered two phenotypically dissimilar alternatives that are genotypically similar.

High need-achievement groups showed evidence of maximum motivation when the observed or stated probability of success was approximately .33. At this point, the high need-achievement group showed the highest level of constrained performance. In other words, the stronger the achievement motive, relative to the motive to avoid failure, the higher the subjective probability of success, given state odds.

### **STATEMENT OF PROBLEM :**

Each individual perceives the situation in his own manner and reacts to it on the basis of his experiences, imaginations and original thoughts. On account of these qualities man creates new horizons, every new invention in the result of man's creative mind. Torrance (1962) emphasised that creative ability contributes significantly to the acquisition of the education, skills and informations.

In the light of above description the researcher was motivated to conduct the study on creativity, adjustment, self-concept and need-achievement. Thus the topic is as follows-

**"A study of creativity as a function of adjustment, self-concept and need-achievement".**

Creative individuals remain happy in creating something new and original. Anxiety should be controlled so that he becomes more creative and moves higher in the scale of evolution towards self-realization and self actualization. Torrance 1959, Feldhusen 1965,



Permesh 1969, Lal 1974 etc. have studied the relationship of creativity and anxiety.

A creative person respects that creative spark of other individuals. This is one of the reasons why education for creativity is so important- creativity is energy being put to work in a constructive fashion.

### **IMPORTANCE OF THE STUDY:**

Self-concept is one's image of oneself especially includes awareness of being (what I am) or awareness of functioning (What can I do). We live in a highly competitive society in which we compete for grades, athletic honours, leadership, job, material partners, social status and almost everything else we value. In these competitive endeavour we are encouraged to surpass others to excel to get to the top". As achievement and consequence, we often drive ourselves mercilessly towards high level of achievement in the process subject ourselves to sustained sever pressure. It is small wonder that many people come to view the world as a "forest primeval subject only to the law of the survival of the fittest." Such attitude ofcourse, hinder the development of healthy ego structures in winness and loser alike. Therefore we have to use our maximum creative power and mental potential if we want to win the race. The use of creativity and innovation in new product development still remain in its infancy in developing countries. It is a major reason why the rate of economic and technological development is low in these countries.

Thus, now a days there is a great importance for research in the field of creativity.

### **RATIONAL FOR SELECTING DISTRICT JALAUN :**

Bundelkhand region of Uttar Pradesh is a backward area from the point of view of literacy and mean of the life. Jalaun being a part of Bundelkhand region deserves a thorough checkup in this regard.

District Jalaun lies in the north-west of Jhansi division of U.P. Total area of the district is 45650 sq. kms. out of which 4,509.6 sq.kms. is rural area and only 55.4 sq.kms. is urban. Number of Towns are four and villages are 1.156. Thus Jalaun is mainly a rural district literacy percentage is only 27.36. Caste plays an important role in all spheres of life. It indicate a reactionary ideology of the people of district Jalaun.

Above description indicates that district is backward as well as a rurally dominated area. It is a well know fact that not a single psychological study regarding the problem of adolescents has been conducted in this district. The present study will be an asset to the people engaged in this area of research.

There has long been general agreement that personality factors are important in creative thinking. Nisha Singh and Gupta (1976) conducted a study to ascertain the relationship between verbal creative thinking abilities as measured by creativity test Chauhan and Tiwari (1974) and creative personality as measured by आप किस प्रकार के व्यक्ति हैं? Parikashan (C.B. Nisha and K. Gupta 1977). The subjects were 125

male and 125 female of undergraduates level. Scores on fluency original power and ingenious solution of problem are significantly related to creative abilities and creative personality is not as high for the females as it was for the males.

### **AIMS AND OBJECTIVES :**

The following are the aims and objectives of the present study-

- (1) To analyse the effect of adjustment upon creativity.
- (2) To ascertain the effect of self-concept upon creativity.
- (3) To assess the effect of need-achievement upon creativity.

### **HYPOTHESIS :**

In the light of above aims and objectives several hypothesis may be formulated and examined.

#### *Main hypothesis :*

- A<sub>1</sub>- There is a significant effect of adjustment upon creativity.
- A<sub>2</sub>- There is a significant effect of self-concept upon creativity.
- A<sub>3</sub>- There is a significant effect of need-achievement upon creativity.

#### *Sub-sidiary Hypothesis :*

- B<sub>1</sub>- There is a significant interaction effect of adjustment and self-concept upon creativity.
- B<sub>2</sub>- There is a significant interaction effect of adjustment and need-achievement upon creativity.

B<sub>3</sub>- There is a significant interaction effect of self-concept and need-achievement upon creativity.

### **LIMITATIONS :**

The present study is a general study of creativity as a function of adjustment, self-concept and need-achievement.

- (1) It does not aim at clinical or diagnostic analysis of behaviour.
- (2) The study is confined only to a geographical area of District Jalaun of U.P.
- (3) The present study is limited to investigate the creativity of college going students level. Students are selected from college population of District Jalaun.
- (4) Students of higher secondary classes such as 10th or 12th grade were not taken in consideration.
- (5) Students of professional college such as ploytechnique, I.I.T., Medical and other management institutes have not been included in the study perhaps if they would be included, results would be better.

### **METHODOLOGY :**

The methodological design of the study have now been set out in this chapter under the following section-

1. Population
2. Sample
3. Tools of the study

4. The collection of Data
5. The statistical analysis

**Population :** There are seven degree colleges in Distt Jalaun. All are situated in urban areas and all colleges are co-educational institutions. Only D.V. degree college orai has the faculty of science teaching up to post graduate level rest of the six colleges have art faculty. Therefore in this study students of art faculty have been selected. The population of present study constituted of college going students of district Jalaun U.P. sample were selected from the college going students of the age group of 18 to 21 years.

**Sample :** Sample of the present study was selected by combination of non-probability and probability technique both. First through quota sampling (stratified cluster sampling) and second through systematic random technique.

Total 400 units of students were selected in which 200 were male and 200 were female students between the age group of 18 to 21 years.

**Research Design :** The present study is concerned with the study of impact of adjustment, self-concept and need-achievement on creativity.

? An ex-post-facto design was considered suitable for the study. Actually present study is of exploratory nature in which the independent variables have already occurred and the research starts with the observation of dependent variables. Independent variables are studied in respect of their possible relations and effect-on dependent variables.

*Variables :* Independent variables :

- 1 - Adjustment
- 2 - Self-concept
- 3 - Need-achievement

Dependent variables : 1. - Creativity

*Tools of the study :* The present study is consisted of college going students between the age group of 18 to 21 years old. Many standarized tests were avilable for the measurement of adjustment, self-concept, need-achievement and creativity.

The following tools are used for the data collection in the present study.

*(1) Creativity test by Dr. N.S. Chauhana and Dr. Govind Tiwari :*

The creative test has been used for measuring different types of creativity. The present test measures five important areas of creativity.

These are -

1. Creative production
2. Fluency
3. Original power
4. Flexibility
5. Ingenious solution of problems

## *(2) Deo Mohan projective test or achievement motivation :*

The test can be administered individually as well as in a group of 25-30 subjects. It can also be given to a larger group with the use of microphone and a few assistants to help. There are five pictures to be shown and each picture is to be shown for 30 seconds. For writing the response stories, 4 minutes are to be given for each picture giving one minute to each of the four questions.

## *(3) Mukta Rani Rastogi's self-concept scale :*

The self-concept scale consists of 51 items. It can be administered individually as well as collectively. There is no time limit but all the items can be responded within the time limit of 30 minutes. In this scale tick [✓] has to be marked on any of the five responses by the subjects. These are five responses- (1) Strongly agree, (2) Agree, (3) Undecided, (4) Dis agree, (5) Strongly disagree. Below each statement are given these five responses. This scale measures ten constructs of self-concept. These are-

1. Health and sex appropriateness
2. Abilities
3. Self-confidence
4. Self-acceptance
5. Worthiness
6. Present, past and future

7. Beliefs and conviction
8. Feeling of shame or guilt
9. Sociability
10. Emotional

*(4) Tareesh Bhatia's adjustment inventory:*

The adjustment inventory has been used for measuring different types of adjustment. The present inventory measures five important areas of adjustment. These are-

1. Home
2. Educational
3. Social
4. Emotional
5. Health

It is a self-administrating inventory. There is no time limit for answering it. However most of the groups should finish it in about 15 minutes.

**COLLECTION OF DATA:** Following procedure was followed for data collection purpose. In the beginning, the researcher gave an orientation lecture to the students in group. They were made acquainted with the purpose of the study through lecture. Every 5<sup>th</sup> student from the attendance register was selected from B.A. part-I, II and III.



Creativity test, need-achievement scale, self-concept scale and adjustment inventory were administered upon the students of the sample to collect the data.

**STATISTICAL ANALYSIS :** The statistical operation followed for the present investigation involved discriptive and inferential technique both. Computation of mean, S.D. and 't' test and anova (2x2 factorial design). Mean, S.D. and 't' test were used mainly for finding out significant mean difference between the sub-groups under study. Quartiles were computed for getting highest and lowest 25% cases on adjustment inventory need-achievement test and self-concept scale. For the purpose of interpretation factorial technique 2x2 was adopted to find out interaction between two variable i.e. adjustment and self-concept upon creativity, adjustment and need-achievement upon creativity, self-concept and need-achievement upon creativity.

#### **DATA-ANALYSIS AND FINDINGS :**

Results have been presented according to the following scheme.

##### *Main Hypothesis :*

**Part- A :** In part A the significant effect of all the three variables i.e. adjustment, self-concept and need-achievement upon creativity was studied. Thus this section have three sub-parts.

A<sub>1</sub> - The effect of adjustment upon creativity.

A<sub>2</sub> - The effect of self-concept upon creativity.

A<sub>3</sub> - The effect of need-achievement upon creativity.

### *Subsidiary Hypothesis :*

**Part B :** In this section the interaction effect of all the three variables i.e.- self-concept, adjustment and need-achievement upon creativity have been studied. Thus this action consist of three sub-parts as follows-

B<sub>1</sub> = Interaction effect of adjustment and self-concept upon creativity.

B<sub>2</sub> = Interaction effect of adjustment and need-achievement upon creativity.

B<sub>3</sub> = Interaction effect of self-concept and need-achievement upon creativity.

### **RESULTS :**

#### *Part A<sub>1</sub> - Effect of adjustment upon creativity :*

Adjustment affects creativity. The following points are given below :

1. Adjustment significantly effect original power of creativity. Low adjusted pupils have least original power of creativity while highly adjusted, pupils have highest original power of creativity.
2. Adjustment has no effect on four areas of creativity i.e. creative production, creative fluency, flexibility and ingenious solution of problems.

3. As for as creativity in total is concerned the high adjusted pupils have high level of creativity. On the other hand low adjusted pupils are least creative.
4. On increasing of adjustment level, creative power also increase.

### *A<sub>2</sub> - Effect of self-concept upon creativity :*

Self-concept has impact upon creativity in total as well as on three areas of creativity i.e. creative production, Creative fluency and original power. F-ratio is significant in all areas of creativity at .05 level.

On the basis of above discussion the following results have been obtained.

1. Self-concept significantly affects on three areas of creativity i.e. creative production, creative fluency and original power.
2. Self-concept has no effect on two areas of creativity i.e. creative flexibility and ingenious solution of problems.
3. Low self-concept pupils have least level of creative production. Creative fluency and original power while high self-concept pupils have highest level of creative production and creative fluency and original power.
4. Average self-concept pupils and high self-concept pupils have same level of creative production and original power.

5. Low self-concept pupils and high self-concept pupils have no significant mean difference on creative fluency.
6. As for as creativity in total is concerned high self-concept pupils have high level of creativity, on the other hand low self-concept pupils have low level of creativity.

*A<sub>3</sub> - Effect of need-achievement upon creativity :*

1. Need-achievement significantly effect on these two areas of creativity (1) Creative production, (2) Creative fluency.
2. Need-achievement has no effect on three areas of creativity i.e.- original power, creative flexibility and ingenious solution of problem.
3. Low need-achievement pupils have least level of creative production and creative fluency while highly need-achieved pupils have highest level of creative production and creative fluency.
4. Average need-achieved pupils have average power of creative production and creative fluency.
5. As for as creativity in total is concerned high need-achieved pupils have high level of creativity. On the other hand low need-achieved pupils have low level of creativity.

**Part B :***B<sub>1</sub> - Interaction effect of adjustment and self-concept upon creativity :*

Adjustment (low and high level) and self-concept (low and high level) plays an important role in the development of creativity. In this section an attempt has been made to study the effect of adjustment and self-concept variables upon creativity and its five sub-areas.

1. Self-concept affects creativity as a whole ( $F= 9.10$   $P<.01$ )
2. High self-concept Ss have high creative power than that of low self-concept Ss.
3. High self-concept Ss have higher original power of creativity than that of low self-concept Ss.
4. There is not any significant effect of self-concept upon four sub-areas of creativity i.e. creative production, fluency, flexibility and ingenious solution of problems.
5. Adjustment has its impact upon one sub-area of creativity i.e. original power. Original power of creativity is higher in high adjusted Ss and much low among low adjusted Ss.
6. Self-concept and adjustment have no any interaction effect upon creativity.

*B<sub>2</sub> - Interaction effect of adjustment and need-achievement upon creativity :*

An attempt has been made to study effect of need-achievement and adjustment upon creativity and its fine sub-areas. Need-achievement significantly affects creative production and creative fluency. On creative production F-ratio 5.56,  $P < .01$  level while on creative fluency F-ratio 18.44,  $P < .01$ .

1. Need-achievement affects creativity as a whole ( $F = 12.62$ ,  $P < .01$ )
2. High achieved Ss have high creative production power ( $P < .05$ ) and also have high creative fluency power ( $P < .05$ ) than that of low achieved Ss.
3. High achieved Ss. are more creative than that of low achieved Ss.
4. There is not any significant effect of need-achievement upon three sub-areas of creativity i.e. creative flexibility, original power and ingenious solution of problems.
5. Adjustment affects creativity as a whole ( $F = 10.81$ ,  $P < .01$ )
6. High adjusted Ss are significantly more creative than that of low adjusted Ss.
7. Adjustment has its impact upon sub area of creativity i.e. original power is significantly high in the Ss of high adjusted and much low in the low adjusted Ss.

8. Need-achievement and adjustment also have significant interaction effect upon two sub areas of creativity i.e. creative production and creative fluency. F-ratio 4.01 and 5.43 respectively significant at 0.05 level.

*B<sub>3</sub> - Interaction effect of self-concept and Need-achievement upon creativity :*

An attempt has been made to study the effect of self-concept and need-achievement upon creativity and its five sub-areas. Results are given here-

1. Self-concept significantly affects original power of creativity. (F-ratio 15.10  $P < .01$  level)
2. Self concept significantly affects creativity as a whole ( $F = 6.27$ ,  $P < .05$  level).
3. High self-concept Ss are more creative than that of low self-concept Ss.
4. Subjects of high self-concept have higher original power of creativity than low self-concept subjects.
5. There is no significant effect of self-concept upon four sub areas of creativity i.e. creative production, creative fluency, creative flexibility and ingenious solution of the problems.
6. Need-achievement also affects creative production. High need-achieved subjects have significant higher mean score than that of low need-achieved subjects (F-ratio 6.27,  $P < .05$  level).

7. Need-achievement also affects creativity as a whole ( $F= 8.07, P<.01$ )
8. Self-concept and need-achievement also have significant interaction effect on creativity as a whole. The interaction effect of significant at 0.05 level ( $F= 4.26, P<.05$ ).

### **SUGGESTION FOR FURTHER STUDIES :**

Research during the conduction of the study has come across some very important facts about which further studies are needed. A few of them are being stated below-

1. As in the present study, three variables i.e. self-concept, adjustment and need-achievement have been studied so as to find out their effect on creativity of college going students. In this regard following variables could also be studies- intelligence, different personality factors i.e. anxiety, aspiration level, imagination power, feeling of love, and hate and rejection etc. social aspects environment etc.
2. It would also be worth while, that apart from such study, some other psychological phenomenon like. The healthy adolescent and his creativity, the question of moral creativity, motivation and creativity, creativity and self etc.
3. Study could very well be conducted on the population of pre adolescents. In this age group creativity plays an important role.



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Base de Datos y Percepciones

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# APPENDIX-A

Raw Scores of College going students on creativity, need-achievement, self-concept and adjustment inventory

Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept									
		Creativity Area							Adjustment							Self-concept									
		1	2	3	4	5	Total	A	B	C	C	E	Total	1	2	3	4	5	6	7	8	9	10	Total	
1	44	72	10	33	10	10	135	8	6	7	6	7	34	21	22	15	7	25	17	10	9	9	9	144	
2	30	40	43	42	15	10	150	6	5	7	7	8	33	20	23	20	10	23	13	10	16	13	9	157	
3	43	61	53	28	10	10	162	6	7	8	3	8	32	18	28	14	9	28	17	12	18	14	14	172	
4	39	40	37	36	15	10	138	9	7	5	5	8	34	18	32	17	8	24	17	12	17	14	9	168	
5	40	49	32	62	10	10	163	10	9	7	8	10	44	18	23	16	14	22	17	9	10	13	14	156	
6	38	26	39	40	10	10	125	6	8	7	4	7	32	14	28	19	8	25	9	10	5	17	12	147	
7	55	49	36	30	15	15	145	6	4	8	5	7	30	18	22	13	12	25	18	8	15	12	8	151	
8	49	59	24	37	10	5	135	6	7	6	5	8	32	18	38	21	13	27	16	8	14	16	15	186	
9	37	59	20	38	10	10	137	6	8	4	5	10	33	10	21	16	8	21	14	8	15	12	8	133	
10	45	32	41	18	12	10	113	8	6	8	7	6	35	15	27	17	10	33	16	13	19	14	8	172	
11	41	49	30	20	10	10	119	4	3	5	1	5	18	15	30	16	13	23	14	8	8	13	16	156	
12	38	40	36	32	15	10	133	4	6	3	8	7	28	14	14	14	12	12	1	10	10	13	13	113	
13	40	40	35	40	10	15	140	7	5	6	5	7	30	18	27	12	11	20	16	12	16	12	12	156	

Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept											
		1	2	3	4	5	Total	A	B	C	C	E	Total	1	2	3	4	5	6	7	8	9	10	Total			
		14	36	41	27	26	10	15	119	6	9	8	4	9	36	11	18	18	5	24	12	13	10	13	12	136	
		15	49	33	17	61	10	10	131	10	9	7	5	9	40	18	30	16	8	28	15	13	14	12	11	165	
		16	30	29	32	40	10	10	121	6	6	7	5	5	29	18	27	12	11	20	16	12	16	12	12	156	
		17	37	19	19	55	10	5	108	8	8	6	6	3	31	22	29	16	11	24	13	10	21	12	10	168	
		18	30	58	42	34	10	5	149	9	5	6	6	8	34	20	25	19	9	21	16	12	10	9	9	150	
		19	39	34	24	30	15	10	113	10	7	5	7	8	37	16	12	9	9	16	9	11	10	4	7	103	
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		21	41	24	36	40	10	15	125	4	2	4	4	4	18	20	23	21	8	24	18	10	12	13	5	154	
		22	38	28	36	30	10	10	114	4	4	6	2	2	18	20	20	12	8	8	15	6	4	11	5	109	
		23	49	45	31	31	12	10	129	9	7	6	5	8	35	19	23	22	11	24	16	9	14	12	16	166	
		24	37	25	42	40	11	10	128	10	9	7	7	10	43	19	30	19	30	27	15	10	13	13	10	186	
		25	37	33	20	51	20	10	134	9	9	8	7	10	43	16	28	20	16	22	18	12	18	11	12	173	
		26	42	23	22	31	14	10	100	7	7	5	3	9	31	16	14	15	9	21	11	10	7	10	6	119	
		27	50	40	42	30	10	10	132	6	5	5	2	5	23	15	26	17	9	21	20	10	13	9	6	146	
		28	37	33	26	28	10	10	107	8	6	5	5	10	34	16	22	15	11	15	16	3	8	14	10	130	
		29	42	40	36	30	15	10	131	7	4	5	0	4	20	16	22	13	21	14	15	13	12	10	10	146	

Sl. No.	Need Achi.	Creativity Area							Adjustment						Self-concept									
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31	36	43	45	40	15	15	158	8	6	7	6	7	34	13	32	15	15	21	16	10	17	15	11	165
32	44	18	22	41	18	15	114	8	7	6	5	4	30	21	22	18	7	23	17	10	9	9	9	145
33	30	12	22	40	10	15	99	4	8	6	10	4	32	12	9	7	8	15	6	10	11	9	17	104
34	26	16	20	24	18	10	88	5	4	7	8	2	26	20	22	17	18	9	2	8	9	10	11	126
35	36	19	32	40	12	15	118	10	7	6	4	8	35	11	12	7	18	9	6	10	5	10	12	100
36	38	22	21	40	18	5	106	9	7	6	4	8	34	21	22	10	7	12	19	15	9	8	12	135
37	32	40	46	40	12	10	148	8	7	6	7	4	32	20	18	15	7	18	15	12	9	8	10	132
38	49	48	42	22	5	5	122	9	4	2	8	5	28	21	19	6	8	9	6	12	14	9	11	115
39	41	39	42	24	16	12	133	7	6	4	2	9	28	12	17	12	12	18	19	15	9	4	9	127
40	42	40	41	30	18	15	144	8	5	6	4	7	30	18	15	8	7	16	11	15	12	9	6	117
41	40	42	48	32	14	10	146	9	8	5	6	4	32	19	9	19	11	10	12	15	12	9	9	125
42	32	19	27	52	14	15	127	7	6	5	4	3	25	16	8	16	8	9	12	16	15	12	6	118
43	55	18	27	40	12	15	112	8	10	4	6	5	33	15	12	15	9	12	15	16	12	18	9	133
44	55	21	28	42	10	5	106	9	4	6	5	7	31	20	4	14	14	15	19	12	18	6	9	131
45	41	32	40	45	14	15	146	10	7	9	8	6	40	21	6	9	12	14	16	12	15	18	9	132



Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept									
		1	2	3	4	5	Total	A	B	C	C	E	Total	1	2	3	4	5	6	7	8	9	10	Total	
	Total	28	30	45	10	5	118	10	8	10	7	8	43	18	15	12	12	16	12	11	12	9	12	129	
46	44	24	32	40	15	15	126	9	7	8	7	6	37	17	20	8	11	12	9	12	18	12	10	129	
47	52	39	32	48	8	15	142	8	10	7	6	5	36	18	18	12	14	12	16	18	19	20	12	159	
48	40	19	32	40	10	15	116	4	9	5	10	2	30	16	18	9	8	7	12	14	16	18	15	133	
49	37	30	31	40	12	15	128	10	9	7	8	5	39	6	20	8	12	14	9	8	16	10	12	115	
50	47	32	13	40	15	5	105	8	7	6	6	5	32	12	22	12	15	18	9	16	15	12	6	137	
51	42	42	45	55	10	15	167	8	9	7	6	4	34	11	12	14	18	19	20	12	14	16	5	141	
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53	38	34	40	28	10	5	117	8	7	6	9	4	34	19	18	19	18	16	15	17	18	12	19	171	
54	32	26	48	30	10	5	119	9	5	6	3	4	27	18	18	15	19	18	12	14	16	18	12	160	
55	30	32	46	45	10	15	148	10	6	4	6	5	31	16	19	16	9	8	12	10	13	11	12	126	
56	40	48	40	40	15	15	158	8	7	6	4	4	29	10	16	18	15	18	14	10	9	8	5	123	
57	41	14	40	61	15	15	145	9	6	4	8	4	31	9	6	6	12	10	12	18	19	10	12	114	
58	37	46	40	55	10	5	156	10	8	7	6	4	35	12	12	7	12	10	13	11	10	9	8	104	
59	38	42	13	40	14	5	114	9	8	7	6	4	34	8	14	8	8	7	12	10	14	13	12	106	
60	40	40	42	41	15	15	153	8	8	7	3	4	30	4	18	9	12	18	10	9	11	10	7	108	
61	42																								

Sl. No.	Need Achi.	Creativity Area							Adjustment					Self-concept												
		Creativity Area							Adjustment					Self-concept												
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63	48	18	40	42	15	15	130	8	10	10	8	9	45	12	21	12	18	12	14	15	11	16	18	149		
64	48	30	44	39	15	15	143	8	7	6	9	5	35	18	19	10	12	12	14	9	12	18	12	136		
65	46	42	40	18	15	5	120	6	8	10	7	5	36	16	18	12	12	18	14	12	18	10	12	142		
66	36	30	31	41	15	5	122	8	7	6	6	4	31	12	16	8	9	12	10	14	16	18	12	127		
67	38	46	39	54	15	15	169	4	8	9	8	5	34	14	12	9	18	12	14	16	9	8	10	122		
68	39	24	21	49	8	5	107	6	3	2	1	8	20	5	8	12	14	16	18	12	2	8	12	107		
69	37	15	18	21	20	10	84	8	7	6	5	2	28	10	5	10	12	6	8	9	12	12	16	100		
70	40	45	49	46	15	15	170	3	9	2	7	1	22	8	6	8	18	14	9	8	10	12	9	102		
71	38	40	38	12	9	15	114	8	5	6	4	3	26	12	18	18	8	12	4	8	9	7	10	106		
72	32	40	45	55	15	15	170	9	3	6	4	9	31	6	7	20	11	12	14	16	18	9	10	123		
73	23	20	32	38	15	10	115	9	8	7	6	4	34	14	10	10	10	13	6	8	9	18	10	108		
74	51	21	40	14	16	10	101	3	8	7	6	9	33	16	19	16	12	14	15	16	18	20	24	170		
75	38	39	46	38	8	15	146	8	7	6	9	4	34	18	16	12	12	10	18	7	6	4	2	105		
76	36	12	36	34	8	5	95	3	6	5	4	9	27	10	18	18	8	19	17	16	14	5	2	127		
77	54	19	40	41	14	15	129	8	10	10	8	9	45	8	12	5	12	18	16	15	12	18	10	126		

Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept									
		1	2	3	4	5	Total	A	B	C	C	E	Total	1	2	3	4	5	6	7	8	9	10	Total	
	Total	18	40	42	15	15	130	9	8	7	5	4	33	4	14	9	10	14	19	20	12	18	16	136	
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79	42	19	42	40	10	15	126	8	7	6	4	3	28	12	19	8	10	12	8	19	10	12	14	124	
80	54	48	40	49	18	15	170	8	7	6	5	4	30	12	18	18	9	12	8	6	7	8	12	110	
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82	46	41	59	18	19	12	149	10	10	9	8	7	44	14	12	20	20	12	18	16	22	12	13	159	
83	32	38	23	21	12	15	109	8	7	9	6	4	34	19	18	21	14	15	10	9	8	12	10	136	
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85	40	48	43	30	5	5	131	9	8	7	6	4	34	20	15	9	11	18	12	8	9	7	12	121	
86	14	15	20	35	15	5	90	4	8	9	7	5	33	11	10	16	14	18	16	20	12	9	8	134	
87	37	40	19	28	6	4	97	6	4	9	3	2	24	13	13	15	7	6	12	10	8	12	14	110	
88	38	20	45	38	6	5	114	8	7	2	1	4	22	15	12	12	15	16	12	18	9	7	10	126	
89	32	49	33	28	17	6	133	8	7	6	5	4	30	17	19	14	12	15	13	10	9	8	12	129	
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91	26	21	35	45	14	15	130	8	6	4	4	2	24	10	18	10	16	12	18	19	20	12	10	145	
92	28	18	20	42	10	15	105	8	10	9	8	7	42	10	20	21	18	7	6	5	12	10	18	127	
93	41	16	46	45	10	5	122	8	6	4	7	4	29	9	10	12	12	14	16	12	18	9	7	119	



Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept									
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95	37	48	28	33	15	5	129	8	7	6	5	4	30	10	18	5	18	12	7	12	10	10	15	117	
96	46	38	45	28	15	5	131	8	7	6	5	4	30	10	22	20	11	9	8	12	16	6	7	121	
97	42	42	50	29	8	15	144	3	8	4	6	5	26	18	28	22	22	18	11	12	18	15	16	180	
98	38	15	20	31	15	15	96	8	7	6	7	5	33	12	7	16	9	6	5	14	12	10	11	102	
99	38	48	34	18	7	6	113	9	6	6	5	4	30	15	6	18	18	16	12	10	9	8	12	124	
100	40	40	42	45	15	15	157	8	7	6	8	7	36	14	5	8	14	15	10	8	9	12	14	109	
101	40	40	40	25	5	15	125	8	7	5	4	6	30	10	6	12	11	8	9	12	19	8	8	103	
102	55	15	48	38	10	15	126	9	8	5	6	4	32	12	5	18	18	9	10	4	10	9	9	104	
103	46	38	35	39	15	10	137	9	8	4	9	6	36	18	20	14	9	7	9	10	8	10	7	112	
104	45	32	30	41	5	10	118	5	6	8	8	3	30	15	8	16	16	6	8	9	15	8	6	107	
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107	48	40	40	39	10	10	139	7	6	5	4	8	30	14	21	10	12	8	9	10	16	15	12	127	
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Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept										
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111	45	30	21	29	15	10	105	5	6	5	8	6	30	15	14	10	20	14	9	6	10	11	10	119		
112	40	38	45	20	10	15	128	7	8	9	6	7	37	10	22	12	11	9	8	12	10	12	6	112		
113	38	30	45	20	10	5	110	7	6	4	5	6	28	8	10	16	10	8	4	12	12	10	10	100		
114	41	25	40	30	15	5	115	9	6	5	6	4	30	17	18	12	12	9	9	12	10	8	7	114		
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116	30	30	48	19	15	5	117	6	5	4	9	7	31	11	14	14	11	6	8	12	18	10	5	109		
117	54	32	46	30	5	10	123	8	7	6	5	4	30	15	10	19	15	19	5	12	11	10	7	123		
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119	52	29	38	28	15	15	125	6	5	4	6	9	30	10	20	12	12	10	10	9	12	8	7	110		
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123	55	48	42	22	5	10	127	9	8	7	5	6	35	18	14	12	10	9	9	10	10	10	7	109		
124	51	45	43	23	5	15	131	6	4	8	6	4	28	17	16	8	9	7	12	12	11	12	8	112		
125	55	45	48	24	5	10	132	4	6	5	4	8	27	12	18	9	8	6	8	10	9	12	8	100		

SI No	Need Achi	Creativity Area						Adjustment						Self-concept										
		Total						Total						Total										
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128	47	35	49	26	15	5	130	7	7	6	4	8	32	18	22	16	11	6	5	10	12	9	8	117
129	40	38	40	28	10	15	131	8	8	7	6	5	34	19	24	12	15	8	7	8	10	9	7	119
130	41	40	48	25	15	10	138	6	5	7	6	4	28	20	20	18	16	7	10	5	9	8	9	122
131	48	45	39	26	15	10	135	8	7	6	5	4	30	22	12	20	14	9	11	10	10	10	7	125
132	30	40	35	30	10	5	120	4	8	9	7	6	34	16	14	12	15	8	11	12	12	9	7	116
133	31	45	36	25	5	15	126	5	6	7	4	8	30	14	15	14	18	5	12	10	18	5	6	117
134	35	38	37	28	5	5	113	8	6	6	6	4	30	20	20	15	19	6	10	10	10	12	10	132
135	39	29	38	25	5	10	107	8	9	8	10	6	41	18	18	16	12	7	9	8	18	10	10	126
136	40	30	40	26	5	15	116	7	6	4	8	8	33	16	14	17	7	8	8	7	14	9	9	109
137	38	40	42	25	10	15	132	9	8	9	8	9	43	19	16	18	8	9	5	6	15	5	7	108
138	37	35	40	20	10	10	115	10	8	6	9	4	37	10	9	20	11	10	12	5	18	5	9	109
139	30	38	38	25	5	15	121	9	9	8	5	4	35	12	12	21	12	9	14	4	19	7	7	117
140	29	39	30	25	5	10	109	8	7	6	5	9	35	18	14	12	14	10	10	8	18	9	8	121
141	37	40	32	15	10	15	112	9	6	5	4	7	31	16	20	14	16	9	11	9	10	8	9	122

Sl No	Need Achi	Creativity Area						Adjustment						Self-concept										
		Creativity Area						Adjustment						Self-concept										
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143	22	30	38	25	15	5	113	6	7	6	4	6	29	15	8	12	12	17	12	10	6	10	7	109
144	55	38	47	25	10	5	125	9	6	9	7	8	39	15	12	14	15	6	10	10	8	9	7	106
145	30	35	40	15	5	5	100	8	9	6	5	4	32	16	4	12	11	9	8	10	10	10	10	100
146	31	40	40	20	10	5	115	8	9	6	7	6	36	8	12	16	12	4	11	10	10	8	9	100
147	32	40	45	20	15	5	125	4	5	4	2	5	20	9	18	18	14	9	6	6	10	6	6	102
148	35	40	30	22	10	5	107	6	8	7	6	9	36	12	14	20	10	10	5	10	12	10	8	111
149	38	45	40	24	15	15	139	9	5	6	4	7	31	16	14	12	12	9	4	7	10	10	10	104
150	40	30	48	28	5	10	121	7	8	5	6	4	30	7	19	15	14	8	0	5	18	9	9	104
151	41	39	45	25	15	15	139	7	7	8	7	7	36	18	12	16	16	7	8	10	12	8	9	116
152	45	29	46	26	15	15	131	7	6	4	7	5	29	19	20	17	12	6	9	6	14	9	7	119
153	48	15	47	15	10	15	102	5	6	7	7	6	31	20	24	18	18	9	7	8	14	7	8	133
154	30	28	40	20	5	10	103	7	6	9	6	5	33	18	11	20	14	14	6	7	15	8	6	119
155	52	22	42	22	10	10	106	5	9	7	6	4	31	12	12	12	16	5	15	6	18	5	4	105
156	36	35	39	24	10	10	118	6	5	4	9	8	32	9	15	14	12	8	9	5	19	9	8	108
157	38	38	30	25	15	10	118	8	7	6	5	4	30	6	18	15	10	6	9	10	14	7	5	100



SI No	Need Achi	Creativity Area						Adjustment						Self-concept										
		Total						Total						Total										
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158	40																							
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160	35	37	38	25	10	15	125	8	7	6	5	4	30	15	8	18	10	12	14	16	8	10	10	121
161	38	40	25	36	15	5	121	7	8	6	5	5	31	10	9	8	12	12	14	15	10	8	9	107
162	42	30	40	25	5	5	105	9	8	6	4	5	32	12	8	9	7	12	14	16	12	10	9	109
163	33	42	40	15	5	5	107	8	7	6	5	4	30	14	10	9	18	12	14	15	10	12	10	124
164	40	36	25	35	5	10	111	8	7	8	7	6	36	15	12	11	10	14	12	9	8	7	10	108
165	45	37	40	40	5	5	127	6	5	6	7	6	30	9	18	10	12	14	15	13	10	8	10	119
166	52	40	36	30	15	10	131	6	5	8	5	6	30	12	9	8	10	12	10	11	10	11	11	104
167	55	40	40	20	5	10	115	6	7	6	7	6	32	10	12	10	12	14	18	10	10	12	11	119
168	40	32	36	25	5	15	113	5	6	5	6	3	25	10	9	8	10	12	11	14	12	10	12	108
169	38	36	32	35	15	10	128	5	8	7	6	7	33	12	8	12	10	11	14	12	18	10	12	119
170	42	40	48	25	15	15	143	7	6	5	6	7	31	14	12	8	10	18	12	14	16	12	10	126
171	40	25	38	40	5	15	123	8	7	6	5	4	30	14	11	12	14	16	10	18	12	16	10	133
172	50	30	35	30	5	15	115	7	6	5	6	8	32	16	11	12	14	10	12	16	10	12	10	123
173	49	38	36	35	5	5	119	9	8	7	6	5	35	10	18	18	10	12	14	15	10	9	8	124

SI No	Need Achir	Creativity Area						Adjustment						Self-concept										
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175	50	33	30	35	10	15	123	8	9	7	6	8	38	10	11	14	15	13	12	10	11	14	10	120
176	50	40	41	40	10	15	146	8	7	6	5	4	30	12	14	16	11	12	15	16	10	8	9	123
177	45	38	36	25	10	10	119	9	6	7	6	9	37	12	10	12	14	16	10	12	8	10	9	113
178	42	32	35	40	15	15	137	8	5	6	8	7	34	14	11	9	18	12	10	18	10	11	14	127
179	40	38	36	37	15	10	136	8	4	5	9	6	32	15	12	14	10	11	8	10	18	9	10	117
180	48	35	32	40	10	5	122	7	8	8	7	6	36	18	17	16	15	10	9	10	11	10	10	126
181	46	39	45	49	15	15	163	6	7	7	9	6	35	12	14	10	15	10	16	10	12	10	11	120
182	38	39	40	45	15	5	144	5	6	6	7	6	30	12	15	16	10	12	14	16	16	10	8	129
183	35	40	45	48	15	15	163	8	5	10	9	8	40	11	17	16	10	12	14	15	16	10	8	129
184	37	45	44	46	15	10	160	7	4	8	9	6	34	8	7	17	16	15	12	11	10	7	9	112
185	40	38	46	40	15	15	154	6	8	10	6	10	40	9	10	11	12	11	18	12	14	11	10	118
186	42	36	40	45	15	10	146	5	7	7	9	7	35	12	14	16	18	11	10	12	14	10	10	127
187	45	48	40	36	10	15	149	4	6	10	8	6	34	12	14	10	12	14	16	12	18	9	10	127
188	50	38	40	41	10	15	144	8	5	5	7	8	33	11	12	14	15	16	10	12	18	9	10	127
189	52	40	41	46	10	15	152	9	2	9	10	6	36	12	14	16	11	12	15	16	18	10	9	133

SI No	Need Achi	Creativity Area						Adjustment						Self-concept										
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191	42	36	32	40	10	15	133	6	7	9	8	9	39	13	18	17	10	18	10	16	8	10	10	130
192	45	40	32	45	10	15	142	8	7	9	5	4	33	14	12	16	15	10	8	9	8	10	9	111
193	38	36	32	48	15	10	141	9	8	9	9	8	43	15	12	8	12	11	10	9	10	8	10	105
194	40	32	39	55	15	15	156	10	8	7	9	6	40	16	15	13	10	12	8	12	10	11	10	117
195	42	45	40	38	15	5	143	9	6	8	7	6	36	12	8	18	16	12	14	12	11	10	8	121
196	46	36	37	38	15	15	141	7	6	5	8	9	35	10	11	12	12	12	14	11	16	12	10	120
197	40	37	32	36	15	5	125	4	8	7	5	6	30	10	11	10	12	14	16	10	12	10	10	115
198	50	32	37	38	10	15	132	7	6	9	8	6	36	8	10	12	14	10	9	12	15	10	8	108
199	50	38	36	35	15	10	134	5	6	7	8	9	35	12	14	11	10	12	13	14	10	9	8	113
200	55	32	36	37	10	15	130	8	6	5	4	6	29	14	11	10	12	13	14	15	16	10	10	125
201	45	40	40	36	10	15	141	6	7	8	5	6	32	15	11	10	12	16	14	17	11	11	11	128
202	43	38	45	40	15	10	148	6	7	8	4	5	30	15	10	12	14	11	16	10	13	9	8	118
203	48	40	45	38	15	10	148	5	8	7	6	5	31	7	8	12	16	11	18	10	12	14	10	118
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205	38	45	40	40	15	10	150	6	7	8	7	6	34	17	11	18	12	15	16	12	18	11	10	140

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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191	42	36	32	40	10	15	133	6	7	9	8	9	39	13	18	17	10	18	10	16	8	10	10	130
192	45	40	32	45	10	15	142	8	7	9	5	4	33	14	12	16	15	10	8	9	8	10	9	111
193	38	36	32	48	15	10	141	9	8	9	9	8	43	15	12	8	12	11	10	9	10	8	10	105
194	40	32	39	55	15	15	156	10	8	7	9	6	40	16	15	13	10	12	8	12	10	11	10	117
195	42	45	40	38	15	5	143	9	6	8	7	6	36	12	8	18	16	12	14	12	11	10	8	121
196	46	36	37	38	15	15	141	7	6	5	8	9	35	10	11	12	12	12	14	11	16	12	10	120
197	40	37	32	36	15	5	125	4	8	7	5	6	30	10	11	10	12	14	16	10	12	10	10	115
198	50	32	37	38	10	15	132	7	6	9	8	6	36	8	10	12	14	10	9	12	15	10	8	108
199	50	38	36	35	15	10	134	5	6	7	8	9	35	12	14	11	10	12	13	14	10	9	8	113
200	55	32	36	37	10	15	130	8	6	5	4	6	29	14	11	10	12	13	14	15	16	10	10	125
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202	43	38	45	40	15	10	148	6	7	8	4	5	30	15	10	12	14	11	16	10	13	9	8	118
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204	50	42	46	45	10	10	153	4	8	7	6	5	30	15	10	12	18	17	13	15	11	8	9	128
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Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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208	45	40	42	45	10	15	152	8	7	6	5	4	30	14	13	12	16	8	6	7	9	10	12	107
209	38	36	40	35	10	10	131	9	8	7	6	5	35	9	18	7	17	13	8	5	10	9	8	104
210	40	38	40	37	15	10	140	6	5	6	7	8	32	11	10	9	8	10	13	15	9	10	10	105
211	50	40	40	38	10	15	143	8	9	6	5	4	32	12	10	11	13	15	10	11	15	10	10	117
212	55	42	45	40	15	5	147	6	5	7	6	8	32	15	9	10	9	8	15	13	10	13	10	112
213	49	45	37	46	15	5	148	9	8	7	6	5	35	15	10	9	10	11	13	15	10	10	10	113
214	48	37	40	45	10	15	147	6	5	4	7	6	28	5	10	15	16	15	10	16	13	10	4	114
215	44	50	60	40	5	5	160	8	9	7	10	9	43	6	10	13	15	17	13	11	12	10	10	117
216	54	60	36	42	10	15	163	9	8	7	6	5	35	7	10	11	15	10	17	13	12	10	10	115
217	51	41	38	47	15	10	151	6	6	7	8	7	34	11	13	15	17	10	12	17	10	12	10	127
218	40	42	55	38	5	10	150	6	8	9	10	10	43	11	13	15	10	17	12	13	14	10	12	127
219	42	38	60	36	10	15	159	7	7	8	7	6	35	12	10	11	15	16	17	12	14	16	10	133
220	43	36	31	38	15	15	135	8	9	6	7	8	38	12	13	11	12	8	9	7	12	11	9	104
221	38	37	36	36	15	10	134	7	8	9	6	5	35	16	10	9	18	7	6	6	10	10	8	100

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223	37	35	40	40	10	15	140	8	7	6	5	6	32	15	10	9	9	9	9	10	10	10	12	103	
224	40	40	30	36	15	10	131	9	10	9	8	9	45	10	9	12	14	16	8	9	10	12	10	110	
225	38	32	40	30	5	5	112	8	7	9	6	7	37	12	10	19	14	15	13	10	8	9	9	119	
226	55	36	32	30	10	15	123	8	9	6	5	9	37	12	10	18	10	14	15	9	10	8	6	112	
227	50	32	37	30	10	10	119	8	7	6	5	9	35	13	12	14	10	12	8	10	11	10	9	109	
228	45	37	32	36	10	15	130	9	8	7	6	5	35	9	8	10	11	12	14	10	9	10	10	103	
229	37	32	33	35	10	10	120	5	8	9	6	7	35	8	9	12	14	10	12	9	8	10	12	104	
230	42	38	40	45	10	15	148	8	9	6	5	7	35	12	13	14	15	9	8	10	12	14	10	117	
231	52	36	37	30	10	15	128	8	6	7	8	9	38	14	10	10	12	13	14	12	10	12	12	119	
232	55	30	45	36	15	15	141	7	8	9	9	7	40	13	14	11	13	15	16	10	12	9	8	121	
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234	38	37	43	44	10	15	149	5	9	8	7	6	35	16	15	10	14	15	16	15	9	12	10	132	
235	40	32	38	37	10	5	122	6	9	8	5	6	34	15	10	12	14	13	17	9	10	9	12	121	
236	42	39	42	30	10	15	136	7	6	7	7	8	35	15	14	10	9	13	12	14	10	9	12	118	
237	47	36	40	32	10	5	123	8	7	6	5	9	35	12	9	14	8	13	17	16	10	9	10	118	

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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239	46	36	32	30	10	15	123	9	9	8	9	9	44	17	16	15	19	9	12	13	10	9	9	129
240	55	36	32	36	10	10	124	7	8	7	6	5	33	14	13	10	12	13	10	12	9	8	9	110
241	45	40	42	36	15	10	143	5	8	9	6	4	32	9	8	12	14	10	13	17	10	12	10	115
242	54	36	38	40	15	10	139	4	8	9	7	6	34	9	12	13	14	10	17	16	10	12	10	123
243	42	37	30	32	15	15	129	6	5	8	4	6	29	13	9	10	14	13	10	9	12	10	10	110
244	40	40	42	45	15	10	152	7	7	6	8	9	37	14	15	10	12	14	15	10	12	10	9	121
245	38	40	42	46	15	10	153	10	8	10	9	9	46	16	17	14	12	13	16	15	14	10	10	137
246	40	30	38	40	15	10	133	9	7	8	6	4	34	17	16	15	13	12	10	12	10	12	12	129
247	41	40	37	40	10	10	137	4	5	6	4	7	26	16	15	10	13	10	12	12	12	10	13	123
248	49	37	40	41	15	5	138	7	8	9	9	8	41	17	16	17	16	13	12	10	11	15	10	137
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250	32	42	40	40	15	5	142	7	8	8	8	7	38	15	14	10	10	13	9	8	9	10	10	108
251	36	36	37	40	15	10	138	9	8	7	10	10	44	9	10	12	11	13	14	12	14	10	9	114
252	40	40	45	40	15	10	150	7	8	7	6	5	33	15	16	13	12	14	10	12	10	9	9	120
253	43	37	40	42	15	15	149	8	9	4	3	7	31	15	16	13	12	10	16	17	10	10	10	129

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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255	42	46	36	25	5	10	122	9	7	6	7	8	37	10	9	10	11	12	14	16	17	10	12	121
256	42	32	38	40	10	15	135	8	9	7	6	5	35	15	12	14	10	16	11	12	10	9	9	118
254	50	37	38	32	10	15	132	9	8	7	6	4	34	16	17	12	10	11	19	11	14	10	12	132
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260	46	40	45	40	10	15	150	9	10	8	9	8	44	13	12	10	11	12	13	14	16	10	10	121
261	47	37	36	40	10	15	138	8	8	4	8	0	28	13	13	14	16	12	13	17	10	9	12	129
262	36	38	37	40	10	10	135	7	6	5	8	9	35	13	12	16	17	13	14	16	10	9	8	128
263	35	32	30	36	10	15	123	7	6	7	7	7	34	12	10	14	16	9	10	12	11	9	8	111
264	32	36	38	30	10	10	124	8	9	6	7	5	35	17	16	13	11	9	10	16	17	10	9	128
265	38	30	38	30	10	15	123	5	8	9	6	5	33	16	18	13	10	9	12	10	11	10	9	118
266	50	37	35	40	15	10	137	6	8	7	9	9	39	14	13	12	10	11	12	10	10	9	8	109
267	40	38	36	40	15	15	144	9	8	7	6	5	35	17	16	12	13	14	15	10	17	10	10	134
268	51	39	40	42	15	15	151	5	8	7	9	6	35	10	12	9	8	10	17	9	10	8	7	100
269	50	60	61	40	15	10	186	6	5	8	7	7	33	12	16	15	13	9	12	16	10	9	10	122



Sl. No.	Need Ach.	Creativity Area						Adjustment						Self-concept										
		1	2	3	4	5	Total	A	B	C	C	E	Total	1	2	3	4	5	6	7	8	9	10	Total
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270	40	46	60	38	10	10	164	7	8	7	6	6	34	17	10	11	12	14	15	10	9	10	11	119
271	43	37	36	32	10	10	125	6	8	7	6	7	34	12	16	17	12	13	14	10	11	10	12	127
272	46	37	38	40	10	10	135	7	6	8	9	6	36	16	12	14	10	12	10	11	10	9	9	113
273	47	32	36	40	10	10	128	6	7	8	9	6	36	17	16	12	14	10	11	12	9	8	8	117
274	40	30	40	46	10	10	136	6	5	8	7	7	33	8	7	6	14	15	16	11	9	9	9	104
275	52	35	30	40	10	15	130	7	8	9	6	5	35	12	16	17	13	10	11	17	10	12	10	128
276	55	60	50	63	10	15	198	5	6	7	8	6	32	14	16	15	13	10	12	18	17	10	9	134
277	43	56	40	46	10	15	167	6	4	8	7	6	31	17	16	15	13	14	15	12	11	10	19	142
278	44	45	63	50	15	5	178	7	7	8	5	6	33	15	13	14	16	10	14	10	13	10	12	127
279	45	40	38	40	15	5	138	6	5	8	9	7	35	13	9	12	14	8	7	12	11	10	10	106
280	44	45	40	46	15	5	151	7	8	9	6	5	35	17	14	12	18	12	16	17	11	10	9	136
281	47	47	48	40	5	10	150	5	8	7	9	6	35	14	15	16	17	13	17	12	11	10	10	135
282	50	47	48	40	5	10	150	6	7	8	9	5	35	17	10	18	16	15	10	12	11	9	10	128
283	53	40	43	40	5	15	143	5	8	7	6	5	31	15	17	16	12	12	10	16	10	10	12	130
284	40	43	53	30	5	10	141	5	8	6	9	9	37	14	26	23	17	10	12	11	14	10	10	147
285	45	40	43	40	15	10	148	8	9	7	9	9	42	13	14	15	16	17	13	14	15	16	10	143

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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287	48	46	43	40	15	10	154	7	7	8	7	6	35	15	11	10	9	10	16	17	13	10	12	123
288	43	36	40	35	15	10	136	6	6	9	6	7	34	15	12	14	13	16	10	11	12	10	9	122
289	36	40	45	30	15	10	140	8	5	8	7	6	34	9	17	16	9	8	12	14	11	9	9	114
290	45	46	48	40	15	5	154	7	6	3	8	5	29	17	16	13	11	14	12	16	11	10	10	130
291	44	43	36	30	10	15	134	6	9	8	7	10	40	17	16	13	12	14	15	10	9	12	10	128
292	43	35	45	40	10	15	145	10	8	9	8	7	42	13	12	14	16	15	18	10	11	12	10	131
293	40	37	38	40	10	15	140	7	8	9	6	5	35	16	10	12	13	14	15	10	17	10	9	126
294	35	40	42	46	10	10	148	7	8	9	6	5	35	13	14	15	16	12	10	9	12	11	12	124
295	37	35	38	40	10	15	138	6	8	9	7	6	36	15	16	10	12	17	13	14	15	11	12	135
296	50	37	32	30	10	10	119	6	7	8	9	6	36	13	14	15	16	17	18	10	13	11	12	139
297	38	36	40	45	15	5	141	6	5	8	9	7	35	14	15	16	10	12	14	10	9	11	10	121
298	50	40	36	42	10	5	133	7	8	9	6	5	35	17	16	11	12	10	14	15	10	9	9	123
299	52	38	37	40	10	10	135	5	8	7	9	6	35	15	12	11	14	10	11	7	12	12	7	111
300	53	37	30	36	10	12	125	10	8	8	9	8	43	12	10	10	13	8	14	8	13	10	11	109
301	50	36	40	46	10	10	142	7	8	9	10	6	40	13	13	5	12	11	10	10	14	11	9	108

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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303	54	47	42	40	10	5	144	7	8	9	6	7	37	15	10	13	16	15	8	9	12	10	10	118
304	43	32	46	40	10	5	133	7	7	6	7	8	35	12	13	14	15	11	12	15	10	9	10	121
305	33	38	36	40	10	15	139	8	7	9	6	5	35	13	14	15	16	10	9	7	12	11	10	117
306	36	37	40	36	10	10	133	5	8	7	9	6	35	12	14	16	17	12	17	9	8	9	10	124
307	37	40	30	25	10	15	120	6	9	8	7	5	35	16	15	12	17	13	14	9	12	10	12	130
308	38	36	42	30	10	10	128	5	8	7	9	6	35	17	15	16	13	14	15	8	13	12	13	136
309	36	37	36	30	10	10	123	10	8	9	7	8	42	13	14	15	11	16	10	9	12	13	12	125
310	37	36	34	38	10	15	133	8	7	6	9	8	38	14	10	10	10	13	16	12	14	10	10	119
311	36	37	40	46	10	10	143	6	2	5	7	5	25	16	10	11	12	14	15	16	12	13	10	129
312	37	40	46	38	10	10	144	7	5	8	9	6	35	17	12	14	15	10	12	10	11	13	12	126
313	35	36	36	40	10	10	132	6	8	7	5	6	32	10	9	12	10	12	14	13	17	10	10	117
314	36	30	25	38	5	10	108	9	8	7	6	5	35	13	14	14	15	11	17	13	12	9	13	131
315	32	36	45	46	5	15	147	9	8	6	5	8	36	14	16	17	18	15	11	12	9	10	10	132
316	36	38	40	40	15	15	148	7	9	8	7	6	37	10	9	12	14	16	9	10	17	10	9	116
317	37	40	42	48	10	15	155	6	5	9	8	6	34	14	15	16	11	12	13	17	10	9	9	126

Sl. No.	Need Achi.	Creativity Area							Adjustment							Self-concept									
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319	36	40	48	40	10	10	148	8	7	6	5	9	35	17	16	10	11	13	13	14	17	10	12	133	
320	40	38	40	46	10	15	149	8	9	6	7	8	38	16	12	10	14	10	9	12	14	10	12	119	
321	46	40	43	37	10	5	135	9	8	9	7	6	39	17	14	11	13	9	10	16	15	12	10	127	
322	32	38	47	40	10	5	140	6	7	8	7	9	37	18	14	12	10	13	16	15	11	12	13	134	
323	38	30	46	50	15	15	156	6	5	8	4	6	29	15	17	9	10	14	18	11	12	10	12	128	
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325	49	43	48	46	15	10	162	6	7	8	9	10	40	17	13	14	12	9	12	9	12	14	10	122	
326	44	40	42	46	15	10	153	7	6	8	9	8	38	15	11	13	16	8	8	17	10	9	9	116	
327	45	47	48	40	15	10	160	7	9	8	6	5	35	16	12	10	17	9	12	9	12	10	12	119	
328	44	40	42	40	15	10	147	6	5	8	7	4	30	17	18	9	12	8	14	16	13	11	13	131	
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330	44	40	37	45	15	10	147	8	6	7	5	6	32	14	16	14	13	17	15	15	14	9	10	137	
331	49	48	50	53	10	5	166	9	8	7	6	9	39	15	16	18	9	8	16	11	14	10	12	129	
232	43	37	38	40	10	10	135	9	8	7	6	7	37	13	17	10	14	12	10	9	12	13	13	123	
333	43	48	40	46	10	15	159	8	9	7	6	5	35	15	11	10	14	15	12	12	13	10	10	122	



Sl. No.	Need Ach.	Creativity Area							Adjustment							Self-concept									
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336	37	38	30	45	10	10	133	8	7	6	5	4	30	13	14	12	15	16	11	12	13	14	10	130	
337	38	36	40	42	10	15	143	8	9	7	8	8	40	16	9	12	11	12	13	10	9	12	10	114	
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339	32	45	55	40	10	15	165	9	8	7	6	5	35	14	12	13	10	15	12	16	11	10	13	126	
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341	42	36	40	42	10	10	138	9	8	7	6	8	38	9	12	11	10	13	14	15	10	12	10	116	
342	45	37	40	42	10	5	134	9	6	5	8	6	34	13	14	12	11	15	16	10	12	13	10	126	
343	36	38	30	36	10	10	124	7	8	9	6	8	38	17	10	12	11	15	14	16	10	12	10	127	
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345	33	38	37	45	10	5	135	9	8	7	5	6	35	13	12	10	14	16	10	11	12	13	10	121	
346	35	37	40	45	10	15	147	8	8	6	8	7	37	12	13	14	15	10	12	13	10	11	15	125	
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348	32	30	36	40	5	15	126	6	8	7	9	10	40	17	16	13	14	15	12	13	16	10	11	137	
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Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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351	36	36	40	41	10	10	137	9	8	7	6	5	35	15	13	12	10	13	14	15	11	11	13	127
352	38	40	36	40	15	10	141	7	8	9	6	5	35	12	14	16	15	12	16	10	12	14	10	131
353	36	32	38	37	10	15	132	8	9	9	6	5	37	14	15	10	11	16	12	18	10	12	12	130
354	48	45	50	40	10	10	155	5	7	8	9	6	35	15	12	14	12	11	18	16	10	12	12	132
355	49	36	30	32	15	15	128	6	9	7	5	8	35	16	14	18	14	12	18	19	12	15	10	148
356	50	40	60	42	15	10	167	9	7	7	9	9	41	18	19	10	12	14	12	16	10	10	10	131
357	32	42	50	30	15	10	147	8	7	6	5	8	34	16	10	12	14	18	19	11	12	16	16	144
358	20	40	40	30	15	10	135	8	4	5	8	7	32	10	12	14	15	16	18	11	15	16	16	143
359	40	55	20	40	10	15	140	9	7	8	5	5	34	15	16	12	14	18	10	12	16	14	10	137
360	41	36	40	45	10	10	141	8	5	6	5	4	28	15	16	18	16	12	11	12	8	10	10	128
361	36	42	40	36	10	15	143	5	6	7	8	5	31	12	14	12	16	18	11	10	12	14	10	129
362	32	38	40	40	10	15	143	6	6	5	8	6	31	14	12	15	16	10	12	14	12	16	12	133
363	55	37	32	38	10	15	132	9	10	9	8	9	45	15	12	14	16	18	12	11	14	15	10	137
364	52	40	45	50	15	15	165	10	10	8	9	9	46	10	12	14	16	11	18	12	15	10	10	128
365	36	30	36	32	10	15	123	9	8	7	5	6	35	12	16	15	15	12	18	19	14	16	10	147

Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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366	38	35	30	32	10	117	7	6	7	7	7	34	15	11	12	18	10	14	12	16	10	11	129	
367	37	40	35	40	10	135	8	7	5	6	6	32	15	16	12	18	10	11	14	15	16	12	139	
368	49	30	36	39	15	130	9	7	6	7	7	36	12	16	18	10	12	14	11	15	16	10	134	
369	45	40	50	32	10	147	7	8	7	6	5	33	15	16	10	12	12	14	15	10	11	10	125	
370	42	45	40	32	10	137	6	7	7	7	7	34	18	10	12	15	14	16	12	8	9	10	124	
371	41	35	40	39	10	139	8	10	10	8	8	44	9	8	12	14	14	15	12	11	10	11	116	
372	39	40	59	60	10	184	7	8	7	6	6	34	12	14	15	16	12	11	10	18	16	12	136	
373	50	50	65	40	10	175	9	7	6	7	6	35	15	12	14	15	16	12	10	11	12	14	131	
374	48	45	50	40	10	160	7	8	7	9	6	37	15	18	16	12	14	15	12	11	10	12	135	
375	32	40	53	43	10	156	7	8	9	6	5	35	15	12	18	16	12	14	15	11	12	14	139	
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377	40	61	50	43	10	174	8	9	6	8	5	36	14	12	15	14	11	12	18	15	10	12	133	
378	38	45	40	49	10	159	5	8	9	6	5	33	15	16	12	14	12	12	18	10	15	12	136	
379	36	65	40	35	15	170	7	8	6	5	8	34	12	18	16	12	14	11	12	14	10	11	130	
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Sl. No.	Need Achi.	Creativity Area						Adjustment						Self-concept										
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383	37	40	40	50	15	15	160	8	7	6	5	5	31	14	18	15	14	14	16	14	18	10	10	143
384	38	40	38	60	10	15	163	8	9	7	5	6	35	11	12	14	15	10	8	9	7	12	10	108
385	36	32	40	65	15	15	167	6	5	8	9	6	34	18	15	12	14	19	10	8	10	11	12	129
386	47	48	40	55	15	15	173	9	9	8	9	9	44	15	17	10	11	12	11	8	11	11	11	117
387	42	35	36	38	10	15	134	7	8	6	9	5	35	15	11	12	18	11	10	7	13	14	12	123
388	45	32	40	49	10	15	146	5	8	7	9	6	35	15	18	19	11	15	16	10	8	9	10	131
389	50	40	48	48	10	15	161	6	5	8	9	6	34	18	19	10	12	8	12	14	15	10	10	128
390	45	35	48	40	10	10	143	6	6	5	8	9	34	15	12	14	15	12	18	11	10	12	10	129
391	48	32	60	55	10	15	172	9	7	8	5	6	35	15	12	11	10	11	11	12	10	12	17	121
392	48	35	40	32	10	10	127	5	6	8	8	8	35	12	14	12	10	15	10	12	11	10	12	118
393	45	38	40	45	10	10	143	9	7	8	6	6	36	15	12	18	16	15	10	12	18	10	14	140
394	49	60	68	40	10	5	183	6	5	5	8	8	32	15	12	16	18	10	14	15	12	10	10	132
395	50	60	65	50	10	15	200	8	7	6	5	4	30	16	18	10	12	14	11	15	16	15	10	137
396	52	30	55	40	10	10	145	8	9	9	6	5	37	12	18	16	10	12	11	15	10	12	14	130
397	32	35	40	46	10	10	141	5	8	9	6	5	33	15	12	18	16	17	19	10	8	10	10	135



Sl. No.	Need Achi.	Creativity Area						Adjustment					Self-concept											
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399	40	40	35	35	10	15	135	9	9	8	9	9	44	15	12	14	10	18	16	10	11	12	10	128
400	50	40	60	50	15	10	175	8	7	6	9	7	37	11	18	15	17	12	14	10	12	10	11	130